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ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE

OF THE

PROVINCE OF ALBERTA

FOR THE YEAR

1964

PUBLISHED BY ORDER OF THE LEGISLATIVE ASSEMBLY

EDMONTON, ALBERTA
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To HIS HONOUR,
J. PERCY PAGE,
Lieutenant Governor of the Province of Alberta.

Sir:

I have the honour to submit herewith the Report of the Department of Agriculture for the year 1964.

I have the honour to be, Sir,

Your obedient servant,
HARRY E. STROM,
Minister of Agriculture.

DEPARTMENT OF AGRICULTURE

1964

HON. HARRY E. STROM, Minister of Agriculture
R. M. PUTNAM, Deputy Minister of Agriculture

HEADS OF BRANCHES

A. M. Wilson, B.A., B.Sc., M.Sc., P.Ag., Commissioner

W. H. T. Mead, B.Sc., P.Ag., Livestock Commissioner

D. H. McCallum, B.S.A., P.Ag., Dairy Commissioner

R. H. McMillan, Poultry Commissioner

R. W. Gillies, Supervisor, Fur Farms Branch

F. L. Grindley, B.A., B.Sc., P.Eng., Director of Water Resources

C. J. McAndrews, M.Ag., B.Sc., P.Ag., Colonization Manager

S. S. Graham, B.Sc., P.Ag., Director, Agricultural Extension Branch

E. E. Ballantyne, V.S., D.V.M., Director, Veterinary Service Branch

J. E. Hawker, B.Sc., B.A., P.Ag., Director, Agricultural and Vocational Colleges Branch

G. R. Sterling, B.Sc., Chairman, Land and Forest Conservation and Utilization Committee

K. G. Taylor, B.Sc., Chairman, Alberta Farm Purchase Board

G. R. Purnell, B.Sc., M.Sc., Ph.D., P.Ag., Director, Farm Economics Branch

Report of the Deputy Minister

R. M. PUTNAM, P.Ag., B.A., B.Sc., M.Sc.

The HONOURABLE HARRY E. STROM,
Minister of Agriculture.

Sir:

I have the honour to submit the annual report of the Alberta Department of Agriculture for the year ending December 31, 1964.

Nineteen hundred and sixty-four was a most variable year insofar as crop yields were concerned. Rainfall was about normal in most sections of the Province with very heavy precipitation in certain districts. On the other hand, drought conditions prevailed in some areas and crop yields were lower than normal.

Hay of good quality was scarce in some districts and by November considerable amounts of hay were being moved to meet the needs of local districts. A cold December and heavy snow depleted winter feed stocks and created problems for livestock feeders.

The Government passed a Crop Insurance Act at the 1964 Session of the Legislature and in June appointed the Corporation to direct its activities.

The Field Crops Branch continued its programs of crop improvement, soil and weed control and crop protection from pests. Damage from grasshoppers was limited as the outbreak, which started several years ago, had abated considerably.

The Horticultural Station at Brooks continued its investigations into vegetable production and studied the use of special equipment.

The chief feature of the livestock position was the continued pressure on cattle prices. Good steers advanced from January to June then sagged back. Hog marketings were up 14% and prices were about $2.50 below 1963. The Federal-Provincial beef cattle performance testing program was continued.

Alberta did well at the 1964 Royal Winter Fair by taking its share of awards. Developments in the field of artificial insemination during the year included: the establishment of licensing, the upgrading of artificial insemination technicians and the setting up of an A. I. Education Committee.

The milk industry registered a 2% increase in production above that of 1963. This was done with 3,000 less milk cows. Bulk handling of milk expanded and Alberta manufacturing plants scored well in competition.

The Veterinary Services Branch continued to increase its services. This is mainly due to the technological changes in Agriculture. The Extension Branch of the Department was required to meet an increasing demand for services. This was mainly due to the need for scientific information and technological changes. This report contains the details of the Extension service for those who are especially interested in this field. The television program, "This Business of Farming" which was conducted in January 1964 was, undoubtedly, responsible for an increase in the demand for agricultural information. Records show a greater demand for knowledge on the part of more producers. The Farm Economics Branch was called upon to provide more information as the cost price squeeze tightened.

The Farm Management section developed an extensive program which served the industry in several areas. Investigations into the cost of production of certain crops produced useful information. The Colonization Branch directed the allocation of land for irrigation and developed programs to improve the use of irrigated land. A land levelling program, using borrowed capital, was initiated in 1964. The Schools of Agriculture (now called Agricultural and Vocational Colleges) operated at Olds, Vermilion and Fairview. The attendance was higher than it had been for several years while new courses served new areas of training. During 1964 there was considerable development of projects that were undertaken under the ARDA program. In November a National Conference for a discussion of ARDA was held in Montreal. At this conference details of new agreements for ARDA were drafted.

Full details of all the activities provided by the Department will be found under the reports of the various Branches.

At the end of December, 1964, the number of permanent staff totalled:

	1963	1964
Technical and professional staff	232	249
Other staff	352	385
TOTAL STAFF	584	634

I wish to express my appreciation to you for your guidance and encouragement and to the staff members of the Department who conducted many programs for the benefit of agriculture.

Finally, on behalf of all the members of our staff, I wish to express our appreciation to everyone who assisted the Department with the work it undertook in developing a stronger industry.

Respectfully submitted,

R. M. PUTNAM,

Deputy Minister.

Report of the Field Crops Branch

A. M. WILSON, B.A., B.Sc., M.Sc., P.Ag., Commissioner
O. G. BRATVOLD, B.Sc., P.Ag., Crop Improvement
L. G. JORGENSON, B.Sc., P.Ag., Special Crops
W. LOBAY, B.Sc., M.Sc., P.Ag., Soils and Weed Control
A. W. GOETTEL, B.Sc., M.Sc., P.Ag., Asst. Soils and Weed Control
J. B. GURBA, B.Sc., P.Ag., Crop Protection and Pest Control
P. J. PROCTER, B.Sc., M.Sc., P.Ag., Asst. Crop Protection and Pest Control
P. D. McCALLA, B.Sc., P.Ag., Horticulture
P. D. HARGRAVE, B.Sc., M.Sc., P.Ag., Supt. Horticultural Station, Brooks
T. KILDUFF, B.Sc., M.Sc., P.Ag., Asst. Supt. Horticultural Station, Brooks
S. MOLNAR, B.Sc., P.Ag., Horticultural Station, Brooks
J. W. EDMUNDS, B.Sc., P.Ag., Apiculture
F. S. GODDARD, B.Sc., P.Ag., Special Projects
D. STELFOX, B.Sc., P.Ag., Crop Clinic

REPORT OF THE FIELD CROPS COMMISSIONER

A. M. WILSON

The year will be remembered as one of extremes, with large areas either too wet or too dry and all of the province generally cooler during the growing season and climaxing with heavy snows and temperatures well below zero through December.

Rainfall was above normal in most areas of Southern Alberta. By mid-July Lethbridge had received three inches more rain than the long-term average. Cardston more than 5 inches and Foremost two inches above normal.

The Peace River Block was soaked in rain most of the summer. Beaverlodge by late August had received 21.7 inches compared with a long-term average for this period of 8.06. At other Peace River points rainfall was more than twice normal amounts.

From a line through Provost to Ponoka and north to Athabasca the very reverse situation occurred. The Bonnyville-St. Paul areas were dried out by mid-July then received heavy rains which produced second growth that failed to ripen. Less extreme conditions occurred throughout the remainder of this area. Light hay crops and short pastures created problems for many cattlemen.

South from the Ponoka-Provost line and particularly to the west crops were excellent. In spite of many variations in growing conditions production exceeded long-term average yields. The wheat crop averaged 22.3 bushels per acre compared to the long-term yield of 19 bushels and 25.1 for 1963. Oat and barley crops were also above average. The quality of all grain and the rapeseed crop was adversely affected by late midsummer and fall rains. Maturity was delayed, some frost damage occurred and damp harvesting conditions all contributed to lower than average grades.

Hay of good quality was not available in quantities required. Farmers from all milk sheds started hauling alfalfa hay, by early November, from the irrigated districts of Southern Alberta. An early heavy snowfall and a cold December depleted winter feed in all areas. Prospects for a long feeding period with minimum feed supplies appeared imminent.

Crop Insurance legislation was passed in March and a Board was named in June to direct operations of the Corporation. It was anticipated that insurance would initially be offered in two or three areas in 1965.

Crop losses from hail were light and early heavy rains over the grasshopper area lowered infestations in a downward cycle even more than expected.

The following table gives the area, yield and production of the principal field crops for 1964 compared to 1963.

	Area		Yield per Acre		Production	
	1963	1964	1963	1964	1963	1964
	—'000 ac.—		—bu.—		—'000 bu.—	
Wheat	5,933	6,495	25.1	22.3	149,000	145,000
Oats	2,424	1,950	51.2	40.5	124,000	79,000
Barley	3,408	3,320	34.9	32.2	119,000	107,000
Mixed grains	309	328	42.1	33.5	13,000	11,000
Fall rye	174	157	15.5	20.1	2,700	3,150
Spring rye	26.4	24.9	18.2	14.1	480	350
All rye	200.4	181.9	15.9	19.2	3,180	3,500
Flaxseed	303	350	12.2	11.7	3,700	4,100
Peas (dry)	7.7	8.2	21.8	24.1	168	198
Rapeseed	223	368	16.0	15.5	3,560	5,700
			—cwt.—		—'000 cwt.—	
Potatoes	21.5	21.1	116.3	115.1	2,500	2,429
			—lb.—		—'000 lb.—	
Mustard seed	72	35	850	657	61,200	23,000
Sunflower seed	1.5	7.5	1,025	500	1,538	3,750
			—tons—		—'000 tons—	
Tame hay	2,564	2,628	1.48	1.37	3,800	3,600
Sugar beets	39.8	42	14.57	12.57	580	528

CROP IMPROVEMENT

Three Crop Improvement Projects were continued; viz. Range Improvement Policy, Project D Field Demonstrations and Project G Variety Demonstrations. In addition a Soil and Crop Management Project under ARDA was approved. However, approval was granted late in the year, and consequently only limited use was made of it during this period.

The Soil and Crop Management Project provides assistance to farmers for the purchase of forage seed in areas where an increase in forage acreage is a prerequisite to economic growth. Assistance in the amount of 50% of the cost of forage seed, not to exceed $70.00 per farmer in any one year, is shared equally by the County or Municipality, the Provincial Department of Agriculture and the Federal Government. Farmers may be eligible for assistance for a total of three years.

Emphasis is placed on crop management and farmer's eligibility to participate in the second and third years is dependent upon his compliance with recommended cropping practices.

One County used the Project in 1964 and $4,903.68 in total assistance was provided.

Range Improvement Policy

This Policy was continued to encourage greater use of cultivated forages in the range areas of southeastern Alberta. A total of 79,500 pounds of forage seed was distributed on which total assistance amounted to $8,272.64.

Project D—Field Demonstrations, Crops and Fertilizers

Under this Project seed was supplied directly to District Agriculturists without cost for their use in demonstrating the value of improved varieties and fertilizer application. A total of 610 pounds of seed was supplied.

Project G—New Variety or Species Demonstration Project

This Project was used to introduce new varieties or species of forage crops and to demonstrate their value. A total of 2,910 pounds of seed was distributed. The kind of seed distributed was Chinook Orchard Grass and Pubescent Wheatgrass.

Forage Crops Seed Production

Total forage seed production declined due to poor harvesting weather, particularly in the Peace River area. Harvesting of grasses was not completed until November, more than two months later than normal. Heavy losses were incurred from shattering. Legume seed production was lower than in 1963 and quality was also lowered. Prices generally were good with most kinds showing some increase over the year previous. The following table gives forage seed production of most kinds in the years 1960 to 1964 inclusive with preliminary estimates only for 1964.

	1960	1961	1962	1963	1964
			—thousand pounds—		
Alfalfa	1,880	2,723	2,000	2,410	732
Sweet Clover	750	7,205	4,430	5,875	1,954
Red Clover	4,250	4,113	2,800	5,840	2,380
Alsike	9,225	11,275	7,700	9,730	5,035
Timothy	840	591	400	730	701
Crested Wheat	736	606	480	425	255
Brome	4,000	3,939	4,000	4,760	4,957
Creeping Red Fescue	12,100	17,046	9,000	5,450	8,412
Russian Wild Rye	......	......	......	350	1,000

PRODUCTION OF PEDIGREE SEED

Cereals and Flax

The following table summarizes the estimated yields in bushels of cereals and flax inspected for registration and certification.

	1960	1961	1962	1963	1964
			—thousand bushels—		
Wheat	2,802	1,301	929	1,315	2,345
Oats	1,229	1,209	1,490	828	848
Barley	597	481	526	499	514
Flax	210	101	64	62	95

Forage Seed

The table below is a summary of reported acreage of grass and legume crops inspected for registration or certification.

	1960	1961	1962	1963	1964
Streambank Wheatgrass (Sodar)	......	......	......	18	18
Brome (Lincoln)	235	80	20	......	......
(Manchar)	38	38	......	......	38
(Carlton)	......	......	18	17	108
(Fischer)	......	......	355	160	155
(Saratoga)	......	......	32	162	217
Creeping Red Fescue (Olds)	877	881	1,471	713	243
(Duraturf)	259	......	109	100	55
Crested Wheatgrass (Summit)	860	732	463½	130	72
(Nordan)	638¼	1,238	1,317	762	823
(Fairway)	343	50	170	90	50
Timothy (Climax)	3,145	1,769	2,218	2,536	3,936
Alfalfa (Vernal)	262	251	225	264	186
(Rambler)	531	818	907½	765	632
(Beaver)	......	......	......	......	307
(Ladak)	75	......	46	51	96
Red Clover (Altaswede)	21	15	......	40	100
(LaSalle)	469	597	364	529	243
Alsike (Aurora)	......	......	619	514	438
Sweet Clover (Cumino)	......	362	......	417	81
Kentucky Bluegrass (Merion)	597	164	157	40	72
Orchard Grass (Chinook)	73	205	317	205	127
(Tardus II)	......	......	......	10	10
Rye Grass Perennial (Norlea)	......	......	......	18	13

Distribution of Forage Seed

As in previous years the Field Crops Branch co-operated with the Canadian Forage Seeds Project in the distribution and multiplication of Breeder and Foundation forage seed. The following quantities were distributed:

Breeder:

Norlea perennial ryegrass	75 lbs.
Rambler alfalfa	100 lbs.
Altaswede red clover	12 lbs.
Leo Birdsfoot trefoil	15 lbs.
Olds Creeping red fescue	75 lbs.

Foundation:

Sawki Russian wild-rye	50 lbs.
Norlea perennial ryegrass	300 lbs.
Redpatch bromegrass	50 lbs.
Rambler alfalfa	525 lbs.
Beaver alfalfa	800 lbs.
Carlton bromegrass	350 lbs.
Nordan crested wheatgrass	450 lbs.
Pennlawn red fescue	300 lbs.
Frontier reed canary grass	25 lbs.
Climax timothy	2,000 lbs.

The Alberta Varietal Zonation Committee

This committee continued to test different varieties for suitability. During the year the committee completed a major revision of the cereal bulletin Publication No. 91. A new format was adopted wherein varieties are described according to their agronomic characteristics and their relative yield and maturity potential rated. The major crop production areas of the province were mapped and the main crop hazards indicated. It was the committee's belief that this type of information would serve as a better aid to decision making for farmers and extension workers than the earlier bulletin.

Forage Crops Advisory Committee

This Committee held its annual meeting in December at which research, plant breeding, extension and promotion of forage crops was discussed.

The Seed Dealers Act

Twenty-four seed dealers were licensed under the Act.

Agricultural Relief Advances Act

Assistance was provided to 41 necessitous farmers in I.D.'s 134 and 132, for the purchase of seed grain, fuel and lubricating oils. Total assistance amounted to $12,161.86.

Freight assistance was provided on the movement of fodder into the County of Grande Prairie. A serious shortage of fodder in the County was the result of extreme dry conditions during the previous season.

The cost of assistance was shared equally by the Government of Canada and the Province of Alberta and consisted of payment of 4c per ton-mile, one-way travel, for distance in excess of 40 miles. Maximum assistance was $5.00 per ton for hay and $2.00 per ton for straw and a maximum total of 50 tons for any one individual farmer.

A total of 52 farmers shared financial assistance amounting to $4,897.05.

The Seed Control Areas Act

During 1964 there was no actively organized areas operating under the Act.

Other Activities

Numerous inquiries re all phases of crop production were dealt with by telephone, correspondence or office and farm visits.

A pasture improvement program was continued in the Edmonton Milk Shed and one initiated in each of the Lacombe and Ponoka Counties. These programs focus attention on the need for and promote the use of better grassland management.

Other activities included judging at seed fairs and 4-H achievement days, preparing and presenting talks on TV, radio and at Agricultural Short Courses. Several articles were prepared for Agrciultural Notes and assistance was provided in the preparation and revision of pamphlets.

The Royal Agricultural Winter Fair—Toronto

The Department continued its policy of assisting exhibitors at the Royal Agricultural Winter Fair, Toronto. The Field Crops

Branch assembled and shipped exhibits to the Show paying the shipping costs both ways. In addition to supervising the exhibits at the Show all prize monies won by Albertans at the Royal were increased by 50%. A special honorarium of $25.00 was paid for each first prize in the classes for wheat, oats, barley, rye, flax, alfalfa, alsike, red clover, sweet clover, brome, fescue, timothy, crested wheatgrass, field beans, russet, (netted gem) seed potatoes, potatoes in the Vegetable and Cooking classes and 4-H Club exhibits. Such honoraria was increased to $100.00 for championships won with exhibits of wheat, oats, barley, rye, flax and forage seeds.

The names of the 1964 winners at the Toronto Royal Winter Fair were as follows:

World Championships:

Wheat (Chinook)	Lawrence Gibson	Carbon
Flax	Harold Hansen	Ensign

Reserve Champion:

Winter wheat	Jim Luco	Lethbridge
Spring wheat	George Luco	Lethbridge
2-rowed barley	Mrs. Martha Jussila	Manyberries

First Prizes:

Wheat, Hard Red Spring	George Luco	Lethbridge
Wheat, Hard Red Winter	Ralph Erdman	Lethbridge
Wheat, Durum	Mrs. Chris Deurloo	Granum
Alsike clover	Gordon Dirksen	Spirit River
Bromegrass	Jacob Oster	Hemaruka
Sheaf Wheat	Carl Brown	Rolling Hills
Sheaf Oats	Carl Brown	Rolling Hills
Oats, any variety	E. P. Skitsko	Bruderheim

4-H First Prizes:

Wheat	Lawrence Gibson	Carbon

SPECIAL CROPS

Acreage of Special Crops in Alberta:

	1963	1964
Potatoes	14,000	13,500
Onions	300	290
Corn (fresh only)	700	680
Cabbage	250	240
Carrots (fresh only)	120	150
Cucumbers	200	190
Turnips	420	450
Dry Beans	500	1,400
Sunflowers	1,500	7,500

Potatoes

Marketable yield—Edmonton area	95 cwt.
Irrigated area	140 cwt.

The total production is down compared to 1963. However, the marketable percentage is higher, making the marketable production up 3% over 1963.

A special survey conducted in November showed the marketable production at 76,000 tons.

Potato prices reached an all time high for December. Producer price for No. 1 washed potatoes was $4.85/cwt.

The 7th Canadian Potato Industry Conference was held in Lethbridge, Alberta, July 6-8, 1964. This was a national conference and all provinces except two were represented. The registration surpassed 400, making it the largest potato conference ever held in Canada.

Onions

Most of the onions were grown in the Medicine Hat and Barnwell areas. Considering the abnormal growing conditions, yields were very good. Good quality onions could be marketed well into February and March if better curing and storage facilities were available.

Corn

Cool weather during the growing season caused later maturity than expected. Yields were low but quality excellent. Twenty-four truck loads were hydro-cooled and shipped to Calgary and Edmonton. The grading and hydro-cooling were responsible for the price being maintained at a reasonable level during most of the marketing season. Wholesalers response to hydro-cooled corn indicates that all corn will be handled in this manner as soon as adequate coolers are available.

Carrots

The carrot acreage increased slightly again this year. Proper storage facilities were constructed by one grower. Locally grown carrots are preferred by wholesalers and consumers. Supply was limited and price was good.

Canning Crops

Approximately 11,000 acres were devoted to canning crops. This includes peas, beans, corn, carrots and a small acreage of pumpkins. It is hoped that assistance provided by the Department of Agriculture will help to overcome some of the disagreement between processors and the canning crops marketing board.

Greenhouse Crops

Alberta's greenhouse industry occupies 2,265,000 sq. ft. of glass or approximately 52 acres. Production value is estimated at approximately $5,000,000.00. This phase of production could expand considerably, particularly in greenhouse vegetable crops.

Other Activities

The Special Crops Supervisor addressed 26 growers' meetings, short courses and field days. A total of 116 farm calls were made during the course of the year and 32 business calls on topics related to special crops. Fourteen radio talks were given and four appearances were made on television. Representation was made at the annual meeting of the Canadian Horticultural Council in Ottawa by the Special Crops Supervisor as well as attendance at 17 meetings planning and preparing for the 7th Canadian Potato Industry Conference.

One herbicidal trial on onions was carried out at Medicine Hat. No reliable herbicide can be recommended for onions as yet.

The Pilot Plant project initiated in 1962 was continued and expanded. In addition to the equipment purchased in 1962 and 1963, storage facilities and onion curing facilities were added to the Horticultural Station. In addition to growing vegetables at the Station, 10 growers in the Brooks area endeavored to grow carrots, onions, parsnips, cucumbers and corn under supervision. In spite of adverse growing conditions, all of these growers made a profit the first year and are expanding for 1965. It is hoped that this venture will lead to the establishment of an expanded vegetable enterprise.

Numerous inquiries by telephone and mail are the result of an increasing awareness of the potentials in commercial vegetable production. Two groups are presently considering the establishment of a commercial vegetable enterprise in 1965.

SOILS AND WEED CONTROL

Weeds and Weed Control

General

The germination of weed seeds was slow and many farmers delayed seeding, waiting for the first crop of weeds to grow. By the end of May, wild oats germinated profusely in many districts. In a number of instances the delayed seeding method was followed, but where the crop was already seeded farmers turned to selective wild oat herbicides.

Spraying for weed control began about the middle of June. Due to dry conditions only limited spraying was done in the St. Paul-Bonnyville districts. Summerfallow fields were generally well-worked but there was some delay in western and northern districts due to too much rain. Spraying was continued well into July. Selective sprays were very effective.

Canada Thistle in particular was difficult to control in the Peace River area because of excessive moisture. In this area practically no fields were fall worked.

Weed Surveys

(a) Survey of the Prairie Provinces

Alberta participated in the weed survey conducted by the Research Station, Regina, Saskatchewan. Much effort was spent in organizing the survey. All Municipalities and Improvement Districts with Agricultural Service Boards assisted in completing the undertaking as directed.

(b) Incidence of Five Persistent Perennials

A more intensive survey organized by this Branch in cooperation with fifty-four Agricultural Service Boards and ten Improvement District Weed Inspectors established the incidence of the persistent perennials. The table below shows the incidence of these weeds with 1963 figures for comparison purposes.

Weed	1963 Farms	1963 Acres	1964 Farms	1964 Acres	Some Areas Showing Heavy Infestation
Hoary Cress	1,073	7,393	889	6,920	Lethbridge, Cardston, Pincher Creek.
Russian Knapweed	296	650	182	680	Lethbridge, Claresholm, Pincher Creek, Taber.
Field Bindweed	1,398	6,624	880	5,719	Lethbridge, Cardston, Pincher Creek, Warner.
Toadflax	6,240	38,616	6,854	65,301	Throughout the Province.
Leafy Spurge	248	4,801	264	4,600	Cardston, Provost, Pincher Creek, Camrose.

Toadflax infestations increased significantly. The more intensive and extensive survey resulted in more new patches found.

(c) Other Weeds of Increasing Importance

(i) **Kochia** increased in area and intensity on cultivated fields in southeastern Alberta.

(ii) **Scentless Mayweed** increased on cultivated fields in the Peace River region. New infestations were located in other central regions of the province on non-cultivated lands.

(iii) **Field Scabious** which was first located in 1962 at Sibbald Flats (50 miles south-west of Calgary) seriously infesting some 200 acres of pasture and hay land, was also located on roadsides and non-cultivated land in a number of places including the Edmonton area.

Weed Inspection and Enforcement

(a) There were fifty-four full-time Field Supervisors (Weed Inspectors) carrying out the weed control programs as set out by their respective Service Boards. In addition, ten municipalities employed a full-time assistant to the Supervisor. Forty-one municipalities employed a total of eighty-five part-time weed inspectors.

(b) There were also ten Improvement District Weed Inspectors employed during the summer months in areas where there were no Service Boards.

(c) For the first time in many years no regional weed supervisors were appointed. Municipal Supervisors, through experience, were able to carry out their work without the help of regional supervisors. Encouragement, assistance and co-ordination was provided from headquarters.

(d) All towns and cities and most villages employed weed inspectors. Two meetings were held with the cities of Edmonton and Calgary to obtain better liaison with the city and the adjoining municipalities.

(e) The following table shows the number of official notices served by weed authorities to land owners (other than cities, towns, and villages), the acreage involved and court cases held. (1962 and 1963 records are listed for comparison purposes).

Year	No. Notices to Destroy Weeds	Acres Affected	No. Notices to Prohibit Seeding	Acres Affected	No. Notices Prohibiting Threshing	No. Court Cases
1962	2,174	48,826	497	19,954	10	9
1963	2,145	41,859	617	25,394	8	11
1964	1,759	35,992	624	24,701	5	10

It is noteworthy that well over 2,000 farmers were served official weed notices and that nearly 25,000 acres of land were prohibited to be seeded due to serious weed infestations.

Chemical Weed Control

(a) Selective Herbicides

There were 7,814,000 acres of cereal crops treated for weed control with 2,4-D, MCPA and related compounds. This was 86,000 acres more than in 1963. The sprayed acreage was the second highest on record. The table shows the total acreage treated with 2,4-D and MCPA during the last seven years:

Year	Acreage treated
1958	5,307,000
1959	6,216,000
1960	7,123,000
1961	6,583,000
1962	8,634,000
1963	7,728,000
1964	7,814,000

20,608 miles of roadsides were sprayed for weeds and 4,196 miles for brush control. About 1,000 miles of irrigation ditches were treated — somewhat less than last year.

Twenty-six municipalities through the Service Boards, continued to distribute herbicides to farmers at cost. The remaining Boards were not involved in any direct distribution and sales program.

(b) Soil Sterilants

The Field Crops Branch continued to supply sterilants to municipalities at cost. By authority of an Agricultural Service Board agreement between the Municipal District and the Department farmers with persistent perennial weeds on their land obtained soil sterilants at one-third cost with the remaining part shared equally by the municipality and the Department. For the control of persistent perennials on roadsides, the Department shared the cost equally with the municipality. As in 1963, the maximum grant was one thousand dollars per municipality for soil sterilants on private land, and $200.00 for sterilants on roadsides.

The kind and amount of soil sterilants used in the last seven years is shown on the table below:

	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.
Sterilants	1958	1959	1960	1961	1962	1963	1964
Sodium Chlorate	222,656	229,040	243,040	254,688	225,232	185,284	215,264
D Bor Granular	57,450	90,150	111,300	94,200	129,350	140,450	140,500
Polybor Chlorate	35,265	75,340	85,300	88,403	73,930	92,665	72,460
Conc. Borascu	24,650	35,700	8,400	11,700	17,800	.....	.....
Monuron	.....	.....	2,000	.....	.....	.....	.....
Benzabor	.....	.....	.....	2,000	6,825	3,375	1,800
Total	340,430	430,230	450,040	450,991	453,137	422,074	430,024

The above totals do not include municipal purchases from other than the Department service.

(c) Spray equipment

Approximately 22,300 farmer-owned field sprayers were in use. This was a slight increase from 1963. To promote proper sprayer use, eight Field Days and meetings were held in June, with an average attendance of 40 farmers.

Forty-six Agricultural Service Boards now own 86 sprayers for use in weed and pest control programs.

Weed Control Trials and Demonstrations

About ninety weed control demonstration plots were set out. The majority were on Tartary Buckwheat, Wild Buckwheat, green smartweed, and lady's thumb using Dicamba, alone and as mixtures. Generally speaking, good control of susceptible weeds was obtained. Other trials were a continuation of using Carbyne and Avadex for wild oat control and Celatox for hemp nettle.

Trial plots using TCA at five pounds rate on cereals for green foxtail control, showed damage to grain in a number of cases. Three other fields were inspected for reported damage; in each case the grain recovered but there was no increase in yields.

The total vegetation control projects at Millet and Hardisty were attended by local Service Boards and one weed touring group. Performance of the various herbicides was observed.

Trials on Field Scabious (Scabiosa arvensis) were continued. Tordon at one pound rate in 80 gallons of water eliminated scabious by late fall application. A number of trials were set out this fall using lower rates of Tordon as well as using a mixture of Tordon and 2,4-D.

Work with Allied Chemical Services, Calgary, on Toadflax control, was continued. Fenac and mixtures including Fenac, are showing good promise.

A series of total vegetation control plots were established at six locations in the Peace River area.

Weed Control With Forage Crops

The program where forage seed was available to farmers at half cost for special weed problems was continued. Under this policy, the recommended forage seed for weedy areas, approved by the District Agriculturist was available for 20 acres per farm, or 30 acres in special cases. There was a limit of 15 applications per municipality.

The table below indicates the extent of participation by districts and the quantity of forage seed used with 1958-1963 years shown for comparison purposes.

Year	No. of D.A. Districts Participating	No. of Applicants	Lb. of Seed Supplied	Acreage Planted
1958	14	30	15,718	1,309
1959	19	146	35,595	2,909
1960	23	200	53,447	4,454
1961	20	315	65,315	5,882
1962	20	271	66,285	6,200
1963	25	245	58,565	5,800
1964	25	300	72,727	7,000

Weeds on Crown Land

Improvement District Weed Inspectors and Field Supervisors investigated many weed problems on Crown land. One special investigation was made on weeds along the shores of a number of lakes in the County of Camrose.

Where possible, unoccupied Crown land was leased to adjoining land owners with special lease concessions granted for looking after the weed problem. In other cases, expenses incurred were paid from Department appropriations recoverable when land is sold.

Roadside Seeding, Mowing and Spraying

(a) Municipal Roads

Municipalities continued the policy of backsloping road edges and seeding them to forage as a soil conservation and weed control measure. The extent of this is shown on the table below:

	1962	1963	1964
Miles of roads backsloped	2,913	2,587	2,770
Miles of roads seeded	2,914	3,021	2,915

The Department under the Service Board program, supplied a total of 59,900 pounds of seed for this purpose. Additional quantities were purchased by municipalities for this purpose.

There were a total of 21,400 miles of roadsides mowed for weed control, and 25,503 miles were sprayed.

(b) Highways

Since 1949 the Department of Agriculture used its own equipment and personnel in the highway seeding program. The Department of Highways obtained a Hydro-seeder and Mulcher to seed steep slopes where regular equipment is not adequate. The figures below show the mileage seeded by the Department of Agriculture and seed used on highways in the last six years.

	1959	1960	1961	1962	1963	1964
Miles seeded	380	600	433	502	526	120
Pounds seed used	2,200	43,000	32,050	40,275	45,022	11,597

Alberta Advisory Weed Committee

The sixth meeting of this committee was held in December, immediately after the National Weed Committee (NWC) meetings at Winnipeg. The Alberta committee accepted the report and recommendations of the NWC for 1965.

Agricultural Service Boards

Practically all of the weed work in municipalities is carried on through the Agricultural Service Boards. Provincial weed work and related activities, regulatory and extension-wise, were closely associated with the Boards.

Upon the Service Board recommendation, there were sixteen parcels of land placed under supervision with seventy-five held under supervision from previous years. Five quarters were released from supervision. There were also six quarters of land placed under reclamation, twenty-nine parcels were continued from previous years and two were released from reclamation.

At the Alberta Association of Municipal Districts and Counties Convention (A.A.M.D.) held in November a resolution was passed asking the Government to amend the County Act and the Agricultural Service Board Act to allow for the formation of Agricultural committees which would become the Agricultural Service Boards in Counties. Some action has been started in this regard.

Land Reclamation Project (ARDA)

A "Land Reclamation Project" was initiated by this Branch and accepted by ARDA. Under this project the Federal Government will assist the province up to 50% of the provincial cost on projects undertaken by the Agricultural Service Boards to encourage farmers to:

(a) reclaim land damaged by wind and water erosion,

(b) reclaim land seriously affected by infestation of persistent perennial weeds,

(c) reclaim areas on cultivated lands affected by alkalinity due to natural drainage. The maximum contribution by the Federal government is $50,000 per year for a period of three years at which time the project may be renewed.

Some assistance was obtained from ARDA funds in 1964, on projects which were financially shared by the farmer, the municipality, and the provincial government but the full utilization of this project will not take place until the 1965 Agricultural Service Board agreements are signed with municipalities.

SOIL CONSERVATION

General

Heavy winds in the Drumheller, Calgary, Vulcan and Strathmore region during March caused considerable soil loss. Numerous radio broadcasts and press releases were issued encouraging the use of strip cropping and trash cover in this area. The main cause was a lack of trash cover and the large areas of fallow.

Water erosion from spring run-off was normal with local areas experiencing some gully erosion. Sheet and rill erosion was again serious on sloping fallow land. Heavy, intense rains in the Hythe, Spirit River and Grande Prairie regions caused extensive gully and sheet erosion in late June and early July. The long slopes together with a highly erodible clay loam soil require extra attention.

A survey of erosion damage conducted by Agricultural Service Boards indicated that wind erosion damage was more severe than in 1963. Water erosion damage was not as serious as in the previous year. Twenty-five of the fifty-four municipalities reported wind erosion damage occurred on 2,137 parcels of land. Damage by water erosion occurred on 1,066 parcels in thirty-

(Drifted soil south of Drumheller, March, 1964.)

three municipalities. This Branch co-operated with District Agriculturists and Field Supervisors in conducting seventy-seven soil conservation demonstrations such as fertilizer use, gully filling and seeding, seeding eroded land, etc. Another survey to determine the amount, extent and main cause of gully erosion and programs to cope with these problems was conducted through District Agriculturists and Field Supervisors. The survey indicated that spring run-off was the greatest cause of gully erosion. Most municipalities indicated they had a policy of gully erosion control through their service board program.

Soil Conservation Act

This Act was passed in 1962 and has been used in a number of instances to obtain the farmer's co-operation in preventing soil erosion. Soil conservation officers have been appointed by all municipalities.

Eighteen municipalities passed by-laws controlling the removal of top soil by a system of permits. Fifteen municipalities passed by-laws controlling the burning of stubble.

Soil Fertility

Fertilizer demonstrations were again conducted by more than twenty Service Boards under supervision of this Division. Fertilizer was supplied by grants through Service Board programs and by the fertilizer trade. Cereal grain samples were threshed for yield determinations. Results were compiled and reported to the Alberta Soils Advisory Committee as well as to the District Agriculturists and the co-operating farmer.

The Alberta Advisory Fertilizer Committee, a sub-committee of the Crop Production Board, responsible for fertilizer testing and recommendations has now changed its name to Alberta Soils Advisory Committee. This change in name is more in line with the activities of the committee.

The use of commercial fertilizer continued to increase. The amounts sold in Alberta during the last seven years are shown below:

	1958	1959	1960	1961	1962	1963	1964
Tons	47,952	65,185	79,878	104,000	126,865	169,273	224,182

The use of fertilizer increased by about 33% in 1964 over the previous year.

Soil Reclamation Project

This project was established to assist District Agriculturists and Agricultural Service Boards to promote proper soil conservation practices and to reclaim land by the use of forage crops and fertilizers. Each municipality was limited to fifteen applications. Applicants received assistance in the amount of one-half the cost of seed and fertilizer for twenty acres. The following table indicates the extent to which this project was used for the period 1959 to 1964.

	1959	1960	1961	1962	1963	1964
No. of demonstrations	186	256	264	307	316	303
No. of D.A. areas participating	23	28	27	27	32	25
Total amount of forage seed (lb.)	37,238	54,654	66,178	68,272	70,130	68,705
Total amount of fertilizer	2,000	5,880	22,680	4,400	1,600	8,000
Total acreage covered	......	....	6,316	6,800	7,000	6,900

There was a considerable increase in the number of demonstrations and a small increase in total forage seed. The amount of fertilizer distributed under the project has been reduced to 400 pounds per applicant.

Extension and Related Activities
Meetings, Tours, Conferences:

Agricultural Service Boards held 226 field days and forty-six tours featuring a number of phases of weed control and soil conservation. The Soils and Weed Control Division took part in twenty-eight such meetings. Members of this Division also spoke at sixteen short courses. Regional Agricultural Chemical Schools for dealers were held at Grande Prairie, Peace River, Edmonton, Two Hills, Stettler, Calgary and Lethbridge. The schools were organized by the weed control division. The Soils and Weed Control Division assisted with the arrangement and took part in six regional Service Board conferences at Two Hills, Leduc, Spirit River, Castor, Lethbridge and Lacombe. A two-day weed inspectors school was held in Peace River town in June. All Field Supervisors and I.D. Weed Inspectors from the Peace River area were present. District Agriculturists from the area assisted with the course. A one-week pesticide course was offered to the Sanitary Health Inspectors and Field Supervisors in October. The Field Crops Branch assisted with the course. Four lectures were given on herbicides.

Miscellaneous Activities

Two short radio talks were given on "What's New in Weed Chemicals" in the early spring. Ten more broadcasts followed on clean seed, cultivation and related topics pertaining to good weed control. Additional radio talks were given throughout the year on timely topics. Thirty press releases were prepared for "Farm Notes". Four television shows were made covering the topics on various aspects of weed control. A number of short releases on weed control were mimeographed for distribution to the field extension staff. Two publications on soils were prepared and printed, viz. "Soil Management in Alberta", Publication No. 155 to replace publication "Fertilizers in Alberta, Publication No. 5 and "Gully Filling and Improving Water Courses", Publication No. 176. A series of meetings on soils and soil management were held at Smoky Lake in the late fall where the Soils Division participated. The personnel of this Division acted as Secretary to the: Alberta Advisory Weed Committee, Alberta Advisory Soils Committee, Land Utilization Committee, and Agricultural Rehabilitation and Development (ARDA) Committee.

CROP PROTECTION AND PEST CONTROL

Crop Pests

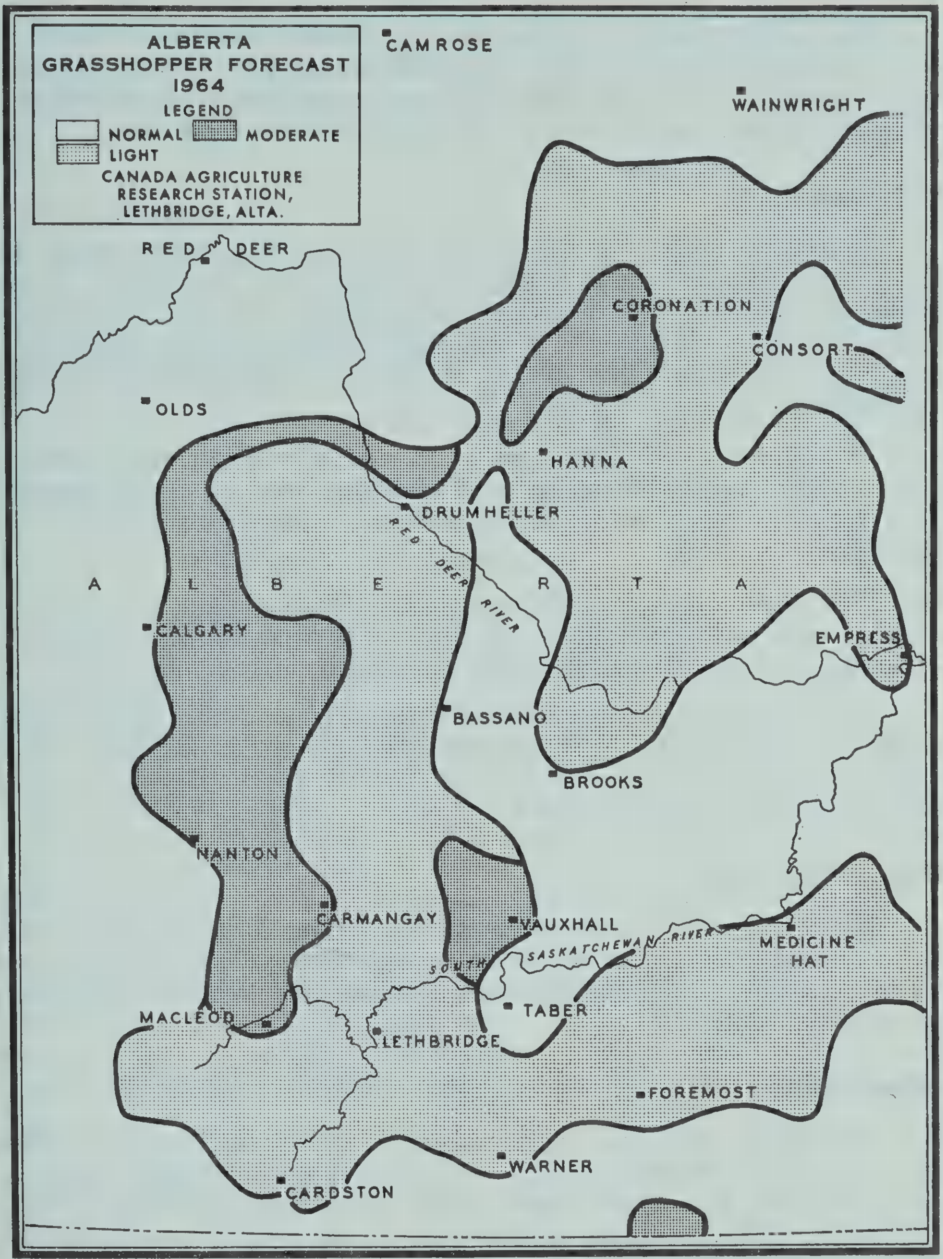
Grasshoppers:

For the first time since 1957 the grasshopper infestation in southern Alberta showed a decrease, amounting to 20% of the 1963 area. The decrease was attributed to weather conditions unfavorable to grasshopper development during 1963 and a build-up of their natural enemies. Intensity of infestation did not exceed the "moderate" classification which covered 3.2 million acres and 12.8 million acres rated as "light". Pockets of "severe" outbreak proportions were scattered throughout the infested area and even "moderate" infestations tended to be spotty. The Clear-winged grasshopper which was the main pest species in 1963 was only of scattered importance during 1964. The Migratory and Two-striped grasshoppers were prevalent through most of the area. The accompanying map approximates the areas and intensities of the infestation.

Unseasonably low spring temperatures and wet weather slowed and delayed hatching in infested regions. Sporadic hatching of 'hoppers started in mid-May and continued into june. Most use of insecticide followed the hatching pattern of the grasshoppers. Crop growth, although slow, exceeded the development of the 'hoppers and later hatches required very little use of insecticides.

Under the grasshopper policy, the Department distributed Dieldrin, Malathion, and Dimethoate insecticides at cost, less handling and shipping charges, through municipal and district offices. The use of the non-residue insecticides, Malathion and Dimethoate, fell sharply in proportion to the use of Dieldrin, since there was little problem in forage or pasture. With the success of Dimethoate in controlling 'hoppers under more varied conditions, supplies of its alternative, Malathion, were available only to the extent of supplies on hand. A signed declaration for each purchase of any of the insecticides emphasized their correct use and in particular cautioned against the possible residue problems of Dieldrin.

The grasshopper forecast and map were printed and sent to municipal, district offices and other interested agencies. Infor-



mation on grasshopper control was up-dated by the revision of Publication 139 "Chemical Control of Field Crop Insects" and 3 mimeograph sheets on pertinent topics. An insecticide use survey was started in the infested regions but was discontinued due to the limited and sporadic use of chemical control.

The following table compares 1964 data on insecticides and size of infestation with that of 1961-63:

	1961	1962	1963	1964
Acres Land Infested	12,000,000	15,500,000	19,700,000	16,000,000
Acres Crop Menaced	1,700,000	2,500,000	3,250,000	2,000,000
Acres Crop Destroyed	20,000	25,000	15,000	4,000
Lb. Tech. Dieldrin Used	63,690	63,750	40,000	10,040
Lb. Tech. Malathion Used	......	175,650	36,000	1,450
Lb. Tech. Dimethoate Used	......	......	52,200	5,500
Acres Sprayed—Dieldrin	1,019,500	1,020,000	640,400	160,600
Acres Sprayed—Malathion	......	351,300	58,600	1,900
Acres Sprayed—Dimethoate	......	......	278,200	29,300

The 1965 grasshopper forecast received from the Lethbridge Research Station indicates a further decrease for the coming season. Infested areas are expected to be only two-thirds of the 1964 infestation and no levels of intensity higher than "moderate".

Cutworms

The numbers of Pale Western Cutworm in prairie areas of the province were much higher than had been expected. Some crop damage occurred in the more southern regions but infestations in crop were patchy which kept reseeding and insecticide use to a minimum. The extent of the infestation was the most widespread in many years.

The Red-backed Cutworm occurred in very spotty infestations in the parkland region and damage was confined mainly to patches in crops. Most of the heavier infestations occurred in the Edmonton area.

The Army Cutworm which occurred in outbreak numbers in 1963 was of no significance. Numerous reports of their presence in fields were received but little damage occurred.

The 1965 forecast for the Pale Western and the Red-backed Cutworm, prepared by the Lethbridge Research Station, were mimeographed along with cultural control methods and sent to municipal and district offices.

Say's Stink Bug

After one of the highest infestations ever recorded last year, little damage occurred from this insect. Some light damage occurred on wheat in the Foremost area but insecticide control was not widely used.

Wireworms

Wireworm damage remained at low levels throughout the province but scattered reports of severe damage came from the Camrose and St. Albert areas. Municipal seed cleaning plants showed a 20% increase in the amount of seed being protected from this pest with seed treatment. Just over 1 million bushels of insecticide treatment of seed was done by these plants alone. Soil treatment of land being sown to commercial potatoes is now commonplace, resulting in fewer culls and damaged tubers.

Other Cereal Crop Insects

Wheat Stem Sawfly damage increased in the south-eastern part of the province. Damage, although extensive in some fields, was mainly confined to the margins of fields of non-resistant varieties and indicates a need for increased use of resistant varieties of wheat. Rescue, Chinook and Cypress, the resistant varieties, accounted for only 6.7% of wheat seeded in the province during 1964.

Heavy infestations of aphids appeared on barley and heading wheat in the Peace River region but little loss in crop was reported from this area. Crops in other regions of the province were relatively free of these pests. Thrips on barley were also present in the Peace River region and some severe losses occurred particularly on late crops.

Forage Insects

Damaged stands of sweet clover due to Sweet Clover Weevil activity, occurred in nearly all regions of the province. Investigations on controlling these pests with non-residue insecticides and of other factors which may be causing poor stands, are underway at the Lethbridge Research Station. The Alfalfa Weevil increased in numbers in the Milk River and Lethbridge areas. Damage to alfalfa increased but no use of chemical control was reported.

Vegetable and Special Crop Insects

Rape seed crops in north-central regions of the province showed an increase in Flea Beetle damage. Preventive measures such as seed treatment or spraying seedling crops were necessary. Some re-seeding of damaged fields was required particularly along field margins. The Bertha Armyworm appeared in several rape seed fields in the Vermilion and Wainwright areas but only one incident of chemical control was reported. Diamond-backed Moth occurred in most rape seed fields throughout the province but did not cause significant damage. The Beet Leaf Miner and Beet Webworm occurred on sugar beets and some insecticide controls were used. Damage by the Leaf Miner was especially extensive. There were 12,000 acres of sugar beets protected against the Sugar Beet Root Maggot, equalling last year's acreage. Heptachlor, the chemical normally used for control of this maggot, has been withdrawn due to the possibility of creating residue problems. Alternate insecticides are being sought for the 1965 planting.

Shelterbelt Insects

The Forest Tent Caterpillar has been a problem in the Elk Point — Cold Lake area for about 7 years. During 1964, as for the past several seasons, the area north of the North Saskatchewan River was infested with light to severe defoliation of aspen poplar and other trees. Urban centres such as Edmonton and Grande Prairie had spotty infestations. Considerable spraying, mostly with DDT, was done during June to protect shade trees, ornamentals, fruit trees and shelterbelts in urban areas, on farms, around picnic shelters, resort areas, etc. During August, moths and egg-bands were being reported from areas 150 miles south and east of Edmonton, following the reported drift of moths southeast on strong northwest winds. Poplar Bud Gall-Mite is prevalent and reported becoming more serious on hybrid poplar throughout southern Alberta. Spider Mite and Spruce Sawfly were much less prevalent than usual. Aphids were numerous on most plants during the season and were commonly reported. Pear Slug continued as a common pest on cotoneaster. The Grey

Willow Leaf Beetle was reported on native poplar and shelterbelt poplar in central and southern Alberta.

The Department's 50% Grant for sprayers for insect control was not used during 1964. The number of municipalities with these sprayers remains at 21. Approximately 192 shelterbelts were sprayed with municipal equipment.

Other Insect Pests

Several requests were received for information on stored grain pests from both farm and commercial sources. Gas masks were maintained with fresh canisters and supplied, upon request, to those using grain fumigants. Information on stored product insects was also supplied to the numerous requests received from householders. Numerous insect pests of crops and garden were identified, in addition to those handled by the Crop Clinic. Pamphlets on control methods and other information were supplied on pests of field crops, forages, gardens and shelterbelts.

Bird Problems

Blackbird damage to corn and sunflowers continued to be a problem in irrigated areas. The publication "Blackbirds in Field Crops" was distributed and the problem further investigated by a special committee. Sparrows and starlings were frequently reported as pests in warehouses, feedlots and farm yards. Information on live trapping, scaring devices and other methods was supplied for various bird problems.

CROP DISEASES

Diseases of Cereals

Smuts and Root Rots of cereals were generally low, partly due to extensive seed treatment. Stem Rust of wheat was scarce in all areas except on susceptible varieties in the southwest region. Wheat Streak Mosaic was abundant in this area. It developed to high levels during the warm, open fall of 1963 and carried over on winter wheat. Many fields were severely affected and plowed under in the spring. Special surveys and publicity were undertaken to encourage proper cultural practises, a bulletin on the disease was prepared.

Leaf Rust was low to moderate but caused little damage. Barley Leaf Diseases were generally low except for Net Blotch which was unusually severe under the wet conditions of the Peace River area. The wet fall in the Peace and northern Alberta also resulted in high levels of Wheat Scab, Basal Spikelet Rot and Glume Blotch in wheat. Timely articles were issued on seed treatment and disease control by crop rotation and good management practises. Municipal seed cleaning plants treated 4,966,900 bushels or 42.3% of total seed cleaned compared to 4,046,300 bushels in 1963.

Diseases of Other Crops

White Rust and Downy Mildew of rape were generally low, except under the wet conditions of the Peace where up to 20% of the pods were damaged. Fireblight of apples, mountain ash and related ornamentals in urban areas was reduced from the high levels of previous years, mainly due to cooler weather.

Diseases of Potatoes

(a) General

The annual field diseases survey began on August 24 with 10 inspectors employed. Very wet conditions made inspection difficult but all fields were covered. Blackleg and Rhizoctonia were generally low. Leaf Roll, Wilts and Common Scab generally remained low. Early Blight was lower than in previous years but there was enough in some irrigated fields to warrant air-spraying with fungicide.

(b) Bacterial Ringrot

The control program was continued in established Pest Areas. Ringrot infected stocks generally were disposed of before planting to reduce the use of infected seed and to prevent contamination of certified seed purchased. Growers generally cooperated well in cleaning up and disinfecting contaminated storages. No official notices were served. Department high pressure sprayers working out of Edmonton and Lethbridge disinfected 27 cellars, plus machinery and equipment. Several more larger growers purchased sprayers or steam sterilizers for year-round disinfection. Certified seed lists were supplied to all commercial growers. Most growers with ringrot in 1963 planted certified seed. A few used seed from their own separate seed plots. Unfortunately others finished off their acreage with commercial stocks which usually showed some infection. Basic precautions proved effective and there was a general improvement in the disease situation except in the Vauxhall area.

The following table shows the crop situation and survey results, with 1960-63 data for comparison purposes:

RESULTS OF RINGROT SURVEY BY PEST AREAS FOR 1960-1964

Pest Area	Year	No. Farms Inspected	No. Farms Infected	Acreage Inspected	Acreage Infected	% Infected	
						Farms	Acreage
Lethbridge	1960	198	53	6,937	1,944	26.8	28.0
	1961	178	64	7,077	2,590	35.9	36.5
	1962	168	40	7,143	1,934	23.8	27.1
	1963	161	60	7,045	3,316	37.3	47.1
	1964	120	51	6,130	2,919	42.5	47.6
Calgary	1960	39	2	291	11	5.1	3.8
	1961	35	4	261	4	11.4	1.5
	1962	28	0	321	0	0.0	0.0
	1963	19	4	237	11	21.1	4.6
	1964	16	2	219	4	12.5	1.8
Brooks	1960	36	10	1,745	565	27.8	32.4
	1961	38	11	2,014	551	28.9	27.3
	1962	36	5	2,270	220	13.9	9.7
	1963	35	7	2,477	260	20.0	10.5
	1964	35	11	2,461	337	31.4	13.7
Edmonton	1960	126	16	3,123	264	12.7	8.4
	1961	124	27	3,114	973	21.8	31.2
	1962	110	6	3,387	430	5.5	12.7
	1963	112	22	3,902	715	19.6	18.3
	1964	120	16	4,215	436	13.3	10.3
TOTAL	1960	408	81	12,138	2,784	19.8	22.9
	1961	370	106	12,466	4,118	28.6	33.0
	1962	342	51	13,121	2,584	14.9	19.7
	1963	326	93	13,597	4,302	28.5	31.6
	1964	291	80	13,025	3,696	27.5	28.3

A total of 13,025 acres on 291 farms was inspected. The Canada Department of Agriculture cooperated with certified seed field surveys in Pest Areas. Specimens from all 4 districts were diagnosed by the Field Crops Clinic. The total number of infected farms decreased from 93 in 1963 to 80. However since the number of farms and acreage also decreased, there was only a small drop in the percentage of infection.

Most infections occurred in trace amounts but a few fields showed levels of 1 to 5%, indicating that the seed or sanitation was questionable. Control measures were discussed at grower meetings and through mail articles. All growers with ringrot infection were contacted by registered mail and several times by personal interviews, to advise and assist with orderly crop disposal and control measures. A circular "Bacterial Ringrot" was distributed to affected growers, along with various publications and disease charts. A new publication on the disease is being prepared.

LIVESTOCK PESTS

Cattle Grubs and Lice

The new livestock systemic insecticides, used as a spray or pour-on in the fall, have generally replaced spring treatment with rotenone, except on dairy cattle. Field testing and promotion of these compounds was continued. Data from field tests of previous years was supplied and was of special interest to districts working on larger area control. There are now in Alberta about 50 spraying associations, plus numerous individual and custom operations. The pour-on method has also made treatment possible without the use of expensive spraying equipment. Most Agricultural Service Boards provided sprayers for demonstration or service spraying. Some 80 demonstrations were held and 1,380 herds with 57,760 cattle were treated for warbles and lice.

Results from the Forestburg Warble Test Project and other field tests showed that Co-Ral and Ruelene systemics gave almost complete control of grubs and effective louse control for 4 to 5 months overwinter. Sixteen field trials were conducted during the year to obtain information on warble and louse control, and for control of houseflies with treated cords and bands, etc. The Division cooperated with the Saskatoon Research Station on a water survey for breeding sites of black flies attacking cattle in the Athabasca-Grassland area. Publications 157 "Control of Livestock Insects" and 167 "Dairy Pesticides" were revised and distributed. Eight dairy field days were attended on insect control. Several timely articles were prepared for TV, radio, the farm press and district offices.

Magpie Control

Few reports of magpie damage to livestock were received. Control by winter live-trapping or poisoning provided relief where needed. Control demonstrations with poison sets were conducted in 6 districts to train new department or municipal officials. All districts now have trained staff who can assist with individual or local control. Several municipalities conducted extensive winter control campaigns in cooperation with sportsman groups, taking thousands of magpies e.g. the County of Newell accounted for 9,175 birds. Generally Fish and Game Associations took little action other than request reestablishment of the crow and magpie bounty. Publication 120 "Magpie Control in Alberta" and other printed information and forms were supplied. Agricultural Service Boards reported 190 poison sets used and an estimated 13,000 magpies killed in their winter control programs.

Coyote Control

During the fall increased numbers and damage from coyotes was reported in some districts. The severe weather and lack of wildlife food supplies were considered factors in this increase. The value of pelts decreased but returns were still sufficient to encourage hunting. More sportsmen hunted coyotes as a weekend sport. These factors helped to reduce the need for poisoning.

The following approved poisons were supplied free of charge to 87 districts which cover all settled areas of the province: cyanide guns (coyote getters), strychnine and sodium fluoroacetate (compound 1080). Since 1951, when the department undertook the control of coyotes in agricultural areas, a total of 43,430 coyote getters, 118,770 cyanide cartridges and 1,069,100 strychnine pellets have been distributed to farmers by provincial and municipal pest control officers. Farmers preferred the easier-to-apply strychnine over coyote getters. The latter were recalled wherever not actively used, in the interest of public and animal safety.

The following table shows the amounts of major coyote control material supplied and estimated coyote kills by the 3 poisons used, with 1960-63 figures for comparison purposes:

	Coyote Getters	Cyanide Cartridges	Scent (2-oz. Jars)	Strychnine (Pellets)	Estimated Coyotes Killed
1960	110	1,170	1,150	59,000	28,300
1961	720	1,120	910	39,000	26,600
1962	230	1,780	1,050	53,000	28,800
1963	600	1,300	990	50,800	21,900
1964	340	1,130	575	38,800	21,900

In fringe areas, coyote control was continued in cooperation with the Department of Lands and Forests. Five provincial pest control officers were employed during the winter in Improvement Districts without Agricultural Service Boards. During the summer 10 provincial weed inspectors handled coyote control along with regular duties.

The poison 1080 was set in sparsely settled areas to assist individual farmers using other control measures on their own land. Under a cooperative program with approved municipalities the following 1080 baits were prepared and set during the winter season:

District	No. Baits Set
Athabasca, County No. 12	15
Cardston, M.D. No. 6	30
Flagstaff, M.D. No. 62	3
Foothills, M.D. No. 31	13
Forty Mile, County No. 8	16
Grande Prairie, County No. 1	4
Kneehill, M.D. No. 48	9
Lacombe, County No. 14	14
Leduc, County No. 25	15
Lethbridge, County No. 26	2
Mtn. View, County No. 17	4
Newell, County No. 4	16
Paintearth, County No. 18	1
Pincher Creek, M.D. No. 9	14
Ponoka, County No. 3	10
Provost, M.D. No. 52	2
Red Deer, County No. 23	16
Rockyview, M.D. No. 44	2
Stony Plain, M.D. No. 84	1
Strathcona, County No. 20	3
St. Paul, County No. 19	13
Taber, M.D. No. 14	10
Thorhild, County No. 7	4
Vermilion River, County No. 24	14
Wainwright, M.D. No. 61	7
Warner, County No. 5	6
Wetaskiwin, County No. 10	14
Willow Creek, M.D. No. 26	13
Special Areas, No. 2 & 3	25
I.D. No. 11	45
I.D. No's. 22 & 24	20
I.D. No's. 27, 946 & 50	9
I.D. No's. 58, 65, 68 & 69	33
I.D. No's. 77, 78 & 95	9
I.D. No's. 85 & 101	1
I.D. No. 102	14
I.D. No. 107	2
I.D. No's. 108 & 109	13
I.D. No's. 124, 125 & 126	6
TOTAL Baits, 1964	448

A total of 80 districts were approved as areas where 1080 could be set with no new districts added in 1964. There was a continuing trend for municipalities to share baits and coordinate activities. The following table shows the 1080 program for the last 5 years:

	1960	1961	1962	1963	1964
Number of Sets	529	605	573	368	448
Number Districts Using	54	53	59	47	52
Number Districts Approved	73	74	80	80	80

The Supervisor, his Assistant and 3 Fieldmen, working out of Edmonton and Lethbridge, serviced 52 districts using 448 baits.

RODENT CONTROL

Pocket Gopher

The pocket gopher continued to damage forage fields, gardens and shelterbelts. Publication 124 "Pocket Gophers" was used to supply control recommendations for small infestations in urban and rural areas. For large area infestations, the department "burrow builder machine" was demonstrated and its use encouraged by farm groups or through rental of municipally owned machines. Field tests showed about 80% control by one machine application of poison bait, with up to 100 acres treated per day. Field tests also indicated that corn baits were as effective as strychnine-carrot baits, during the spring season. Demonstrations were held in 9 districts and assistance was given to 3 municipalities in the operation of the Elston gopher getter machine. Fifteen municipalities now have machines available for mechanical bait application by farmers on their own land.

Other Field Rodents

Rabbit damage to ornamentals and shelterbelts was low since rabbits were scarce in most areas. Mice continued to damage nursery stock. Information on repellents and control methods was supplied as requested. Columbian Ground Squirrel continued to be a problem in the Porcupine Hills and parts of the southern foothills. Some cooperative investigation and control work was carried out with the Department of Lands and Forests.

Norway Rats

The control program was continued in all parts of the province with special emphasis on the east border. The following table indicates the rat situation on December 31, 1964, with 1962-63 data for comparison purposes:

	Year	Verm. River County No. 24	Wainwright M.D. No. 61	Provost M.D. No. 52	Sp. Areas No. 2 and 3	Acadia M.D. No. 34	I.D. No. 11	I.D.'s 85 and 101	Totals
Premises Checked	1962	1,071	300	568	556	177	482	242	3,396
	1963	1,072	263	573	482	173	493	335	3,391
	1964	1,315	409	375	400	173	494	325	3,491
No. Infestations Exterminated	1962	33	5	4	12	3	5	21	83
	1963	28	6	4	11	2	4	11	66
	1964	83	21	63	20	4	6	1	198
No. Infestations Remaining Dec. 31	1962	0	0	0	1	0	1	0	2
	1963	2	0	0	2	0	0	0	4
	1964	8	1	7	0	1	1	0	18

A total of 216 premises were infested during the year as compared to 70 in 1963. All but 18 infestations were exterminated by the end of the year. Many of these could be finalized but cold weather in December prevented final checks and operations. The invasion from the east increased over 1963. In previous years pest control officers had worked 10 or more miles into Saskatchewan. During 1964, we depended on Saskatchewan's new control program which was encouraging but not completely organized. The M.D.'s of Vermilion River and Provost had considerable difficulty which was resolved to some degree by the appointment of new pest control officers. Two special meetings were attended to improve liaison between the M.D. of Vermilion River, the City of Lloydminster and Saskatchewan rural municipalities. Considerable assistance was given to Saskatchewan officials in their organization program.

In all other districts the situation remained firm or improved. In the main, rats were held along the 380 mile front and confined to a narrow strip along the east border. The Department's 50% grant toward salaries and expenses of municipal pest control officers was continued in 6 border districts. Two provincial officers worked closely with municipal men and residents, and supervised control in northern Improvement Districts. Some 250 pest control officers were appointed by rural and urban municipalities to handle local infestations. Outside the east border area, 76 suspected rat cases were investigated, with 3 positive. Warfarin and Pival poison baits were widely distributed, free of charge, to residents in the east control area and for suspected cases elsewhere. The following quantities of bait were used during the year: Ready Mixed — 21,260 pounds and Water Soluble — 4,300 packages. Estimates based on average rat infestations and amounts of poison used, indicate that over 35,000 rats were killed.

Educational rat displays and demonstrations were used at summer fairs, TV., radio and other news media. Rat control films, colored slides series, mounted rat specimens and control materials were used and supplied for various meetings in Alberta and Saskatchewan. Newly appointed pest control officers were trained and supplied with control kits, posters and publications. Field testing of new poison formulations was continued. Coloring in baits was tested and used as an added safety feature. Several timely articles were prepared for the press and department publications.

Pest Control Committees

The 8th annual meeting of the Pest Control Advisory Committee was held in December, with the Supervisor serving as secretary. The Wildlife, Predator and Conservation Sub-Committee also met in December. The Supervisor attended the 3rd annual meeting of the National Committee on Pesticide Use in Agriculture. Meetings of the Western Canada sections on field crop insects and livestock pesticides were attended. Various problems of mutual concern were dealt with by the above committees on a provincial, regional and national basis.

Miscellaneous

The Supervisor and his Assistant spoke at 53 meetings, short courses and field days. Thirty conferences and committee meetings were attended. Twelve articles were prepared for Farm Notes and the farm press. Thirteen radio and TV interviews were made. The Division cooperated with the Department of Health in a 4-day Pesticides Training School. Various investigations were carried out, in cooperation with the Food Residue Committee, on positive cases of pesticide residues at farms and processing plants. There were 205 field investigations made on various pest problems.

HORTICULTURE

Horticulture Services

Alberta farmers planted 2,142,330 trees from the Provincial Nurseries at Oliver and Brooks. This is a decrease of 252,125 from the previous year. The number of farmers receiving trees was 5,218 an increase of 936 over 1963. The weather particularly in east central and southeast Alberta was dry at planting time and losses were experienced.

Tree Nursery — Oliver

There were 2,011,280 trees supplied to 4,570 farmers and in addition 452,400 trees were supplied to the Department of Lands and Forests. A grand total of 2,463,670 trees were shipped. This was a decrease of 259,535 from the previous year.

An inventory of trees at the end of 1964 included 3,605,775 seedlings, 3,338,000 transplanted stock and 1,671,600 heeled in for shipment in 1965. In addition to these 8,615,375 trees the Nursery staff made 450,000 hardwood cuttings of several varieties of Poplar and Willow. Fifteen large white spruce were supplied to the Department of Public Works for landscape purposes and 18,220 3-0 Colorado spruce were supplied to 16 individual schools and clubs for their Arbor day programs.

Seed of the following varieties was collected, cleaned and stored for future use; Maple, Green Ash, Larch, Caragana, Norway Spruce, Mountain Ash, Birch, Douglas Fir, Balsam Fir, and Scotch Pine. In addition 200 bushels of cones of Colorado Spruce and 5 bushels of White Spruce were collected and processed.

The Nursery employed the following staff in 1964; 4 permanent men, 14 for summer work and 62 casual men hired during the shipping season. The equivalent of one and a half men were employed by the Department of Lands and Forests on a 12-month basis.

1,167 seedbeds were maintained and 598 new beds were established. 625,300 (2-0, & 3-0) stock of several species of conifers were transplanted. 450,000 cuttings of Poplar and Willow were lined out.

The following new shelterbelts were planted at the Nursery; ¾ mile of Villosa Lilac, ¼ mile of Mountain Ash and ½ mile of White Spruce. The enlarged parking lot was landscaped and 500 Conifers were planted around the new dam site. The cold storage building was finished and is a valuable addition. A new dam was constructed on Horse Hill Creek and it is now possible to empound enough water to irrigate the whole Nursery with the additional sprinkler equipment obtained in 1964. A lath house was constructed, a new seed cleaner purchased and manure spread on 20 acres of new land.

Three lots of registered seed of grass and legume were cleaned for the Canadian Forage Seeds Project. No new equipment was required for this work.

The Nursery staff made 204 tree seed germination tests for the **Department of Lands and Forests:** This work included a determination of the number of seeds per lb., the purity of the sample, the percent moisture in the sample as well as the percentage germination. 302 new Conifer seedbeds were established and 742 old ones maintained. 452,000 evergreen seedlings and 1,255 lb. of seed were shipped to ten forest divisions. 5,000 lb. of Spruce and Pine seed were treated with a fungicide prior to storing in the new control temperature storage building. 5,600 bushels of cones have been received and to the end of the year 2,500 lb. of seed have been extracted from 3,200 bushels.

The bullet planting project was continued and expanded to include the testing of 6 different kinds of bullets. 14,400 seedlings were shipped to the Hinton district for further testing under field conditions. These seedlings have been successfully stored for 3 months before planting outside.

Thirty-three Poplar varieties and hybrids were planted on the Nursery in order to evaluate them for forestry purposes. A

Provenance Test with Jack Pine has been established. The Federal Department of Forestry has supervised and assisted in this project.

One thousand one hundred and thirty-eight larger sized trees and shrubs were baled and burlaped and shipped to Provincial Parks throughout the Province. Soft wood cuttings of Juniper and Cedar were started as well as 13,290 other trees planted out to ensure a supply of suitable planting material in the future for Provincial Parks.

Alberta Horticultural Association

The Association held its 12th annual meeting at Calgary on Saturday, February 29th. The 10th annual Provincial Show was held in Calgary on August 21st and 22nd in conjunction with their annual Bench Show. The Executive met twice and 2,000 copies of three issues of the official publication "The Alberta Horticulturist" were issued.

Horticultural Advisory Committee

This committee is composed of representatives of the University, Research Stations of the Canada Department of Agriculture, personnel from the Field Crops Branch and representatives of the commercial and amateur horticulture industry in the Province. The committee meets once a year and is responsible to the Crop Production Board.

Potato Production Improvement Committee

This committee appointed by the Horticultural Advisory Committee is composed of commercial and seed potato growers from all the major producing areas of the Province and Government personnel interested in potato production and marketing. It is responsible for assisting the potato industry and acting in an advisory capacity to the Horticultural Advisory Committee. The committee met in November in Calgary.

Tuber Indexing of Foundation Potato Seed

The service of indexing foundation potatoes was continued by the Field Crops Branch, the Horticultural Station, Brooks and the Canada Department of Agriculture. 1,796 tubers were prepared and grown in the greenhouse at the Provincial Horticultural Station and for the first time two disease readings were taken the first on January 17th and the second on January 27th. The greenhouse was kept at 60°F for the first reading and 72°F for the second. There was a significant difference between the two readings likely due in part to the higher temperature after the first reading. Virus infection was again very heavy; only 50 percent of the tubers being returned to the growers. Ten potato seed growers took advantage of this service and the following varieties were tested: Netted Gem, Norland, Chinook, Red Pontiacs, Warba, Red Bliss, Irish Cobbler and Bliss Triumph.

Seed Potato Production

The following table is an 8-year summary relative to potato seed production in Alberta:

	1957	1958	1959	1960	1961	1962	1963	1964
No. of Growers	65	61	68	62	57	51	50	45
No. of Fields Inspected	222	203	266	253	249	190	182	174
Acres Inspected for Cert.	1,577	1,615	2,070	1,847	2,196	1,617	1,607	1,576.5
No. of Fields Rec. Cert.	188	172	236	223	158	179	160	152
Acres passed for Cert.	272	1,300	1,716	1,547	1,442	1,415	1,475	1,271

Nursery Inspections

In co-operation with personnel of the Plant Protection Service of the Canada Department of Agriculture, the Supervisor of Horticulture inspected 11 Commercial Nurseries. The inspection was carried out in July and is done primarily to check imported stock for insects and disease. The Department issued a list of Alberta Nurseries.

Other Activities

The Supervisor of Horticulture visited 26 District Agriculturist areas assisting with farmstead planning, tree planting, beautification and other horticultural matters. He addressed 16 public meetings, assisted at the 4-H Leaders Conference and acted as judge at the 4-H elimination contest at Olds. He also assisted in judging at several 4-H Garden Club Achievement Days. Two interviews were given on the Department's daily radio program "Call of the Land" and one TV appearance on C.F.R.N. and three on C.B.X.T. Twenty-four press releases were published in the Department's weekly newsletter "Farm Notes". Fifty trips were made to the Oliver Tree Nursery and four trips to Southern Alberta and two trips to the Peace River to attend meetings and discuss problems regarding special crops and other horticultural matters. Ten visits were made to the University to discuss matters of mutual interest and concern. He is the Department's representative on the Edmonton Regional Planning Commission and attended eight regular monthly meetings and two Executive meetings. He is a member of the Alberta Horticultural Association and edited the official publication of this organization. He acted as judge at seven local fairs and Horticulture Shows. Several visits were made to the Crop Clinic to discuss problems of mutual concern. Horticulture information was given to many hundred parties by phone and mail. He was a member of the Marketing Act Study Committee and several weeks were spent studying the marketing of agricultural products in B.C., Ontario, Idaho and Washington in the United States.

HORTICULTURAL STATION, BROOKS.

Introduction

Among the broad fields of agricultural science, horticulture includes fruit, vegetable, flower and ornamental production as well as landscaping. It involves the man in commercial orchard, vegetable, seed, nursery and greenhouse industries as well as the home owner, who plants a lawn, a shrub, and a flower garden,

and the apartment dweller with his potted plant. Also the landscape architect and the parks superintendent and their involvement with the host of people who find their recreation amongst horticultural plants. Gardening is the number one hobby and recreational activity. Horticulture has many nutritional, aesthetic and economic values. Commercial fruit, vegetable, tree and cut flower production is big and can be bigger business in the province of Alberta. Associated businesses and service represent a big dollar industry with a rapidly developing appeal.

It is to servicing this spectrum of agriculture the Station staff and its work is directed. Lectures, short courses, field day programs and personally conducted tours of the work familiarize people of the province with applicable aspects of project developments. These projects deal with vegetables, ornamentals, fruits and tree production.

Vegetable Production and Programs

Efforts at the Horticultural Station have been centered on the pilot production of fresh vegetables for the potential and promising Alberta market. Carrots, onions, corn, tomato, celery, parsnips, cucumbers and cabbage were grown under commercial conditions during the year. Undertaken as an additional project to those carried previously was the production of corn, cucumbers, onions, carrots and parsnips by ten farmers in the Eastern Irrigation District. The program of planting, growing, harvesting, storage, processing and marketing was guided by Station personnel and assisted by Station equipment. Majority of the growers had no previous row crop experience, the season was unfavorable, but all enjoyed a marked degree of success. Their program envisages an increased acreage and greater participation by their group in the processing and marketing aspects. Capital structures for storing and drying crops in this pilot project were built.

First efforts were directed towards the production and marketing of carrots. These have met favorable grower, wholesaler, retail and consumer acceptance. Pilot storage tests were shown that we can handle and market carrots over a prolonged period. Large scale storage tests were commenced with this harvest season. Cultural programs to determine rates of seeding and the best cultural and irrigation practices were commenced. On the highly fertile land used for this program, fertilizer practices did not influence the total yield as much as size of seed and rate of seeding. Using a Planet Jr. 110 36K unit, seeds that will pass sieve size of one twentieth should be seeded with a No. 3 plate; seed of one sixteenth will use a No. 4 plate and seed passing a one twelfth or one fourteenth sieve will use a No. 5 plate to give an optimum stand with good germination conditions. Superimposed on this test was the introduction of two plots using seed produced at the Station of Imperator 11 and Empress carrots. These stands were strong, vigorous and very free from any visible disease problems. Uniform 33°F, high humidity storage was essential with minimum aeration of storage containers. However, polythene containers or covered pallet boxes, was found essential to long time storage. Immediate post-harvest cooling was necessary but carrots can be stored washed, or unwashed. After a two-month storage period unwashed carrots did not present an attractive packaged product. Varietal plots seeded to check the affect of seeding rates, indicated that rate of seeding influenced time of harvest more than variety . With thin seeding all of the varieties checked could have been marketed as bunched carrots by the end of July.

Table No. 1

CARROT CULTURAL TRIAL PLOTS

Seeded May 26, 1964 — Emerged June 6, 1964

Variety	Seed Plate	Seed Size	Pound Rate of Seeding /acres	Fertilizer at Seeding	Side Dressed	Stand	Rough Graded tons/ ac.	Remarks
Imp. B.S.	#6	1/14	4½	100# 23/23/0	July 10 200# 27/14/0	Thick	20	Large % small roots.
Imp. B.S.	#4	1/20	3-3½	100# 23/23/0	200# 27/14/0	Thick	21	
Imp. B.S.	#4	1/20	3-3½	100# 23/23/0	1st week Aug. 150# 16/20/0	Thick	20	
Imp. B.S.	#4	1/20	3-3½		150# 16/20/0	Thick	22	½ number of irrigation but not significant due to rains.
Empress	#5	1/16	2½-3	100# 23/23/0	1st week Aug. 150# 16/20/0	Good	23	
Empress	#5	1/16	2½-3	100# 23/23/0		Good	22	
Empress	#2	1/16	1½-2	100# 23/23/0	1st week Aug. 150# 16/20/0	Thin	10	Very large roots.
Empress	#3	1/16	2-2½	100# 23/23/0	1st week Aug. 150# 16/20/0	Thin	13	Large roots.
Empress B.S.	#6	1/12	4½	100# 23/23/0	150# 16/20/0	Thick	20	Large % small roots.

NOTE: Imp.—Imperator; B.S.—Brooks Seed.

Onion plantings to check the use of herbicides in weed control, the use of fertilizers and curing procedures, were laid down. Single applications of fertilizer showed no significant yield differences. Heat curing has given us a well colored, firm skinned product for market.

Celery, planted mechanically, again gave a highly profitable crop which was well received by the wholesale trade. Immaturity was found to result in wilting on retail shelves. Pallet boxes used in storage permitted the marketing of a first class product to the Christmas trade. The marketing of celery presented packaging problems.

Parsnips continued to present bruising problems during storage. Stored unwashed, then washed at packaging time, the product was much more acceptable. Over-wintering tests have been laid down.

Early transplanted, hot tent protected tomatoes yielded 22 tons of ripe fruit per acre. This is in direct contrast to the normally planted unprotected plants which gave no great marketable crop. Severe wind damage and cracking influenced marketability of the product. Varietal characteristics and marketing programs were not successfully dealt with.

Cabbage storage tests have been established under different environments to check keeping characteristics and green color management problems.

Wind damage set back the cucumber transplant blocks. Their final yield was not greater than the normal planting date stands. Early seeding and transplanting techniques have been found possible.

Fertilizer tests on sweet corn gave a significant response to phosphorus applications. Nitrogen did not significantly increase yields. Husked, hydro-cooled packaged corn from this planting was again well and profitably received by the trade.

Vegetable Variety Trials

Eight hundred and five varieties of 45 kinds of vegetables were grown in the 1964 program. Yield data, along with plant characteristics, were recorded. This trial was carried on for appraising value and regional adaptability of new varieties. Their performance was compared with already recommended varieties. Accumulated data served as the basis of our recommendations for revision of the Alberta Horticultural Guide.

Selected varieties from the tomato screening tests were more carefully looked at in a replicated trial. Highest yielding varieties for the 1963-'64 crops were Alpha Five, Brooks 2116, Brooks 2111, Early Crop, Globetrotter and Red Bobs.

Emphasis was placed on pole bean yields during the 1964 season. Picking dates and yields are tabulated in the following table.

Table No. 2
POLE BEANS
Seeded May 19, 1964

		Harvest in kg.						
		Aug.	Aug.	Aug.	Aug.	Sept.	Sept.	
Variety	Source	14	17	20	25	1	9	Total
Blue Lake Stringless	Steele Briggs	2.2	2.8	2.0	3.65	6.2	1.25	20.1
Blue Lake	T & T	4.95	5.95	3.75	2.45	5.9	4.7	27.7
Blue Lake 228	Asgrow	0.15	1.1	4.8	2.5	1.4	5.0	15.0
Burpee Golden	Burpees		2.7	1.8	1.9			6.4
Dade	Sub. Exp. Stn.	2.45	3.6	2.6	3.0	4.8	3.9	20.4
Italian or Roman	Gill Bros.				.10	1.4	1.9	4.3
Kentucky 191	Asgrow	0.25	.38	2.7	.30	3.9	2.85	10.4
Kentucky Wonder Wax	Burpees	4.05	2.85	2.75	4.55	2.6	3.6	20.4
Kentucky Wonder W.S.	Burpees	3.55	7.0	5.2	2.6	6.4	4.25	29.0
Kentucky Wonder	Asgrow	0.85	1.95	3.25	2.20	5.4	4.55	20.2
McCaslaw	Asgrow	2.25	1.0	5.25	2.1	4.8	9.5	25.0
Oregon Giant	Gill Bros.	6.0	5.3	4.8	3.85	7.0	5.6	32.6
Scarlet Runner	McKenzie	0.35	1.15	1.1	.87	2.3	2.35	8.1
Scotia Swap	Robson	1.45	2.4	2.9	4.2	4.4	3.0	20.4

Castle pepper foundation seed stocks have been increased. This will be made available to the seed trade.

Tomato Breeding

Emphasis was placed on re-assessing the selections from earlier crosses for skin toughness and firmness of flesh. From 384 selections there were 26,000 plants set for growing and re-examination. Out of these 176 selections were brought in for re-growing and further evaluation. Red Bobs tomato has had a broad, general acceptance by the home gardener. This variety is not large enough to be a commercial tomato but its ability to set under cold conditions, its high color and good flavor make it useful. The tomato breeding program was continued with production of crossed seed by control pollination.

Potato Breeding and Selection

Since 1955 and through 1964, 76,187 potato seedlings from controlled crosses have been grown in this program. A number of seedlings are grown each year and the selections remaining in 1964 from each of the years are tabulated in Table No. 3. Based on the above work there are a number of seedlings that will be recommended for National trials because of certain inherent characters. These are as follows:

BP. 56-19-5F—earliness and high yielding ability.
BP. 59- 8-3 —early, good boiling score, chips well out of conditioning rooms.
BP. 59-14-5 —high yield and good culinary quality.
BP. 60-64-3 —good early yield and good culinary quality.

Twenty-seven seedlings are being recommended for the Regional Screening Trial at Scott, Saskatchewan. These are from the 1960 and 1961 crosses.

Table No. 3

Number of Potato Seedlings Grown in Greenhouse

Year	No. of Seedlings	No. of Seedlings Remaining 1964	No. in Early Tuberizing Trial	No. in National Trials	No. Recommended for National Adapt. Trials
1955	5,919	2	2	2	......
1956	6,619	2	2	2	......
1957	7,265	2	2	......	3
1958	7,278	3	3	......	3
1959	3,994	7	6	4	......
1960	7,249	7	6	......	7
1961	8,309	35	......	......	......
1962	9,800	67	......	......	......
1963	7,819	186	......	......	......
1964	11,929	11,929	......	......	......

National Potato Trials and Brooks Potato Trials include six groups of potatoes. Culinary evaluations were made on all of this material.

Shelterbelt Tree Program

Tree production at this Station has involved the planting, growing and harvesting of seed, from which to produce trees. During the past season we completed the largest harvest of tree seed, comprised of 1,220 pounds of clean seed. This has permitted planning for major production changes.

The seeding of 1,937 lb. of tree seed begun on April 28 and was completed on May 29. Trees and cuttings shipped for distribution from the Oliver tree nursery totalled 193,700. Shipping direct from the Brooks Station, commenced on April 20 and was completed on May 11, involved a total of 439,000 trees. During the fall harvest of trees 414,000 were dug, which included 35,000 fruit trees. Poplar and willow one-year old whips, totalling 189,000, were immediately shipped to the Oliver tree nursery.

Rooting of poplar and willow cuttings was most successful. Russian Olive germination created some problems and more basic investigation must be done here. For the third consecutive year Manchurian Elm failed to produce seed. These trees have gained a wide acceptance in the brown soils area of the province because of their drought resistance and density. Stratification studies were continued on seed of species found difficult to germinate.

Fruit Breeding and Selection:

Tree Fruits—total initial plantings in the Co-operative Fruit Tree Program amounted to 15,520. These had been reduced by the spring of 1964 to 4,367 or 28.1% of the original planting. During 1964, 2,028 were marked for removal, leaving 15.7% of the original trees. There were 324 selections made for further observation. This brings selected trees to 416 or 2.68% of the original planting.

The tree blocks in the Cultural Trial Orchard were replanted to the variety Kerr. Plants for replacement of vacancies in the original planting were established so that a backlog of similar type trees would be available.

The Varietal Trial Orchard lost a number of trees during the winter of 1963-'64. Actually, there were 232 trees removed because of winter killing and 45 due to fireblight. Trees remaining in this orchard have been treated with the new systemic bacteriacide NIA 3514. This material has proved most helpful in controlling fireblight in the orchard but is a difficult material to handle.

Plum seedlings produced a good crop of fruit. Unsatisfactory trees have been marked for removal and selected seedlings were propagated during the late summer. Progenies of **Prunus salicina** (Manchurian Plum) have continued to prove hardy and their fruit has been consistently of high quality.

MacIntosh apple seedlings that were lined out in 1958, as survivors from seedling production, produced their first fruit crop. Two selections were marked for further observation and propagation. These produced apples from two to two and one-half inches in diameter, having good color, keeping quality, fair flavor and texture and are white-fleshed.

Small Fruits — winter kill and yield data were taken on 42 varieties of raspberries. The five highest yielding varieties during the past summer were Chief, Honeyking, Madawaska, Ottawa 273, and Trent. Based on a five-year record compiled from yield, quality, and winter-killing, the top ten varieties were Chief, Gatineau, Herbert, Honeyking, Latham, Madawaska, Rideau, Trent, Tweed, and Van Dyke.

The major part of the varieties in the strawberry trial were lost during the winter of 1963-'64. Plants were propagated for reestablishment of this trial. During the summer 80 selections were made from the 3,660 seedlings established in 1962-'63. Section was based on yield, appearance, quality, fruit support, height of fruit from ground, alkali and disease resistance. During the winter of 1963-'64 crosses were made between some 47 varieties of strawberries. These have been germinated and will be moved to the field in 1965.

Raspberries and strawberries have been established in the greenhouse for the 1964-'65 winter breeding program.

Seventy-seven selections of rhubarb seedlings have been reestablished. These are the progeny of varieties that have shown some resistance to 'redleaf' and were selected from the original stand after taste panel evaluation. Blocks of the four main varieties — MacDonald, German Wine, Crimson Red and Valentine have been replanted.

Varietal evaluation of currants and gooseberries was continued and this year freezer samples were prepared for later taste panel selection.

Ornamentals

Establishment of new lawns, beds, and borders, made necessary by rerouting of access roads and provision of larger parking areas, was continued. A season-long, changing, colorful display has been achieved which was favorably viewed and commented upon by the visiting public. Following the early tulip display, peonies, roses, and annual bedding plants took over. Flowering shrubs, notably lilacs, ornamental **Prunus** and crabs, hawthorn, mayday, mockorange, and native high-bush cranberry, contributed bloom in season. Annual bedding plants, the modified rockery and the perennial border performed better than usual, so also did the lily and penstemon collections. In its season the gladiolus patch was the focus of visitor attention. It comprised 1200 named varieties. Surplus gladiolus corms (approximately 5000) were supplied to the Vocational Colleges at Olds and Vermilion, to Spy Hill Gaol at Calgary, and to the Institute at Bowden. Display of hardy Korean mums and fall asters was curtailed by severe frost on September 10. The tulip collection, when dug and replanted in a new site, showed an increase of over twenty percent.

In addition to display values, flowering, hardiness, and other records are made on material in the major groups. Considerable addition was given to the roses, both garden and shrub types, to prepare same for rootstock studies of hardiness, propagation and resistance to chlorosis. Growing of 'own root' stock, as well as budding on **multiflora** and **canina,** was undertaken. Two covered controlled mist beds were used for rooting of roses and native juniper cuttings. Planted in early fall many struck roots before onset of winter. A third covered bed grew softwood cuttings for transplanting into the ornamental block.

Lath house culture of the junipers collected near Banff, Cluny, and in western Montana has shown many are worthy of propagation, naming and distribution. New lilac varieties, obtained as scion wood from the Arnold Arboretum (Boston), the Botanical Gardens (Hamilton) and from the Dominion Research Station at Morden, were grafted on green ash and other hardy lilac.

Greenhouse space, in spite of addition of two heated 'coldframes' was strained to the limit. Potato, tomato, and strawberry breeding occupied the early months of the year. For spring use, thousands of tomato, celery, and cabbage transplants, as well as lesser numbers of nine other kinds of garden vegetable transplants were grown. Floral bedding plants were also produced. Korean mum and geranium cuttings were rooted for testing and decorative purposes. In summer, benches were occupied with new strawberry seedlings, juniper, and a wide range of softwood cuttings. Potato seedlings (about 8000) were grown in the fall and harvested in early December to make way for the tuber indexing, a service performed annually for the potato seed growers.

Herbicides

Herbicidal weed control, due to the cold wet weather, was not as satisfactory as in previous years. Failure of applications of herbicides to the vegetables in the pilot plant program made it necessary to undertake considerable tractor and hand cultivation. Some hand pulling of weeds had to be done in the carrot stands where normally herbicidal control has been complete. Weed control in corn, onions, and parsnips was not satisfactory. Spray applications for the control of weeds in farm pilot plantings, although not satisfactory, indicated that the following herbicides were promising — FW 925, Dacthal, Alicept, C3470, C.P. 3193 and Swep. They all compared favorably with C.I.P.C. and Randox and were more consistent in action. Weeds and grasses in orchard, shelterbelt, and ornamental blocks were completely controlled with repeated sprays of Reglone and Gramoxone. These sprays were integrated in our cultural program as a basis for reducing the hand hoeing.

Insecticides and Fungicides

This program was expanded to balance the expanding pilot vegetable undertaking. The fungicides Captan, Fermate, Karathane, replaced Bordeaux mixture because of their ease of application and effective control. Sevin has replaced D.D.T., Malathion and Rotenone in cabbage worm control. It proved most effective and was of value in the harvest program because of its three-day residual waiting requirement. Infestations of pear slugs on the **Prunus** species was heavy. They were effectively controlled with general spraying programs based on the use of Cygon. In **Prunus** species fungus caused considerable trouble in the seed beds but was effectively controlled with applications of Fermate. Seed bed mildew problems, insect and fungal problems in the roses and gladiolii were controlled with regular spraying programs. This spraying program, during the last growing season, reduced the build up of many of our troublesome pests and diseases.

Processing

Taste panel checks were made on 210 different kinds of vegetables and 105 varieties of fruits. During the summer growing season 169 were placed in storage for later evaluation. Passed through the cooking laboratory for culinary and taste evaluation this past season were varieties of rhubarb, plum, apricot, raspberry and strawberry. Storage trials were run to check the keeping quality of all new apples.

An increased portion of the laboratory's staff time was directed towards the boiling, baking, french frying and chipping qualities of commercial and seedling potatoes. The results of this work are correlated with the Prairie Regional Potato Committee. Close liaison was also maintained with the commercial industry in overcoming their processing problems.

At the request of the District Home Economics service a pilot run of processed whole cabbage heads has been undertaken.

Co-operative Programs

Station staff continued its cooperation with the Canada Research Service. These trials included forage corn and sweet corn varietal and fertilizer trials, and hybrid sorghum-sudan cross evaluation studies. Vegetable cooperative trials included those on beans, soya beans, onions and sunflowers. We continued to participate in the Prairie Fruit Breeding Co-operative program, the Ornamental Varietal testing program, and the National Potato Trials.

Education

Station staff conducted five major field days during the past season. Four of these dealt with specific horticultural subjects, the fifth was a general invitational day to acquaint the people in the immediate district with the Station program. Attendance was greater than that for the single field day held the previous year, which dealt with one phase of horticulture only. Registered attendance at the four specific field days was as follows:

Pruning Field Day	105
Ornamental Field Day	259
Vegetable Field Day	142
Fruit Field Day	170
	676

Organized visiting groups attending the Station for a day numbered 18. The total attendance for these visits was 1385 being an increase over the 1963 attendance of 310. The Station was host to 270 members of the Seventh Canadian Potato Industry Conference during their tour of southern Alberta.

Station staff made 422 off Station calls, which included 354 farm visits, calls and meetings relative to the vegetable pilot program. Other meetings dealt with agricultural programing, 17 field days and short courses, 6 negotiating committees, 11 judging commitments at horticultural shows, and 8 general horticultural calls for problems relating to landscaping and park development. Landscaping plans were prepared for 10 farmsteads, 11 residences, and 5 public buildings. Facilities at the Station were extended to the District Agriculturist for plumbing, welding, cattle feeding and swine short courses. The engineering staff of the Irrigation Development Branch were provided with office and drafting space.

There are now five temporary employees from the Station registered in the Horticultural course at the Olds Agricultural and Vocational College. A further member of the staff has registered in the correspondence course in horticulture from the Ontario Agricultural College, bringing to four the number now participating.

Climate

A growing season of 135 days occurred between April 29 and September 10. A frost free period of 123 days started with the last killing frost of spring on May 11 and finished with the first killing frost in the fall on September 11. Generally speaking the growing season temperatures were cooler than average. There were no extended drought periods as precipitation occurred at periodic intervals. December was cold with continuing record low temperatures and heavy snow cover. A summary of weather conditions appears in the following table:

Table No. 4

Month	Temperature Max.	Temperature Min.	Mean Temperature Max.	Mean Temperature Min.	Mean Temp.	Precipitation Inches	Hours of Sunshine
January	52.0	-24.0	26.7	6.0	15.7	1.05	91.2
February	58.0	10.0	42.0	20.5	30.8	.05	144.5
March	68.0	-22.0	32.7	11.0	23.6	.70	148.9
April	75.0	7.0	52.4	27.5	42.9	.45	186.7
May	84.0	31.0	65.0	40.9	58.1	2.05	230.0
June	85.0	35.0	72.8	47.4	63.7	1.88	236.7
July	95.0	42.0	80.9	52.5	71.9	1.56	375.9
August	91.0	37.0	74.6	47.8	64.2	1.62	287.1
September	78.0	25.0	59.1	37.7	50.0	2.64	134.5
October	83.0	19.0	61.9	31.5	46.4	.18	211.5
November	67.0	-20.0	37.6	17.1	25.4	.46	96.0
December	39.0	-41.0	4.3	-14.1	-3.5	1.38	57.9

Farm and Capital Program

Capital developments were — (1) the design and construction of an insulated 14,432 cubic foot capacity insulated vegetable warehouse with compressor and cooling coils; (2) a 16 x 24 foot drier for the curing and drying of onions, hops, and corn or tobacco, and (3) land levelling on Plot 15, and a deep drainage channel commenced through the northern area of the Station in an effort to overcome the alkaline drainage difficulties. During the season the last holdings of the old horticultural station within the town of Brooks limits were transferred. This involved 100 acres of land and placed beyond Station use the only light, sandy areas of arable soil which had been available. An effort has been made to recoup this asset with an isolated acreage of arable land. All of the irrigable land on the Station is now under cultivation, and, with the exception of 15 acres of alfalfa, is being used for horticultural programs.

A replacement tractor unit was purchased and the addition of a small garden tractor supplemented the power equipment at the Station. Irrigation equipment was improved with a new automatically controlled unit for the lath house propagating area. Three garden tillers, a fertilizer spreader, and a four foot grain drill were added to the operating facilities.

REPORT OF THE APICULTURE SECTION

Honey production was down about 3 million pounds from 1963 even though the number of colonies increased 12,250. The per colony production dropped from 162 in 1963 to 102 this year; unsatisfactory weather was the main cause.

The northwestern part of the province had the third small crop in succession. In 1963 the area was too dry — this year too wet. Package bee deliveries were normal and spring build-up was normal. Dry conditions in the south reduced nectar yields and cloudy or rainy weather in the north reduced bee flight.

Markets

Honey prices increased about one-half cent per pound. The cash bulk price, f.o.b. beekeeper's plant, was 14.5 - 15.5c/lb.

World honey price weakened somewhat. Alberta bulk honey is not finding the strong world market enjoyed in 1963, but with reduced production in Canada and Alberta no market problems are anticipated.

Investigations

The study of temperatures in bee vans hauling packages from California was continued. Difficulty is being experienced in finding satisfactory temperature control for hauling the large loads now coming in. Bee vans carry up to 2,500 packages as compared with 1,500 five years ago. No cooling units are available to control temperatures in loads of this size, which generate heat. The same temperature equipment and technique was used, but larger fans and a different ventilating system were employed. A satisfactory system still has not been developed.

Sampling of Honey for Insecticides

Fifty samples of honey were collected from beekeepers representing most beekeeping areas in the province. These were checked by the Dairy Laboratory for residue of pesticides used in insect control.

Disease Control

Due to inclement weather and difficulty in obtaining competent bee inspectors, the number of colonies inspected decreased considerably. American foulbrood continued to be the apparent disease problem. In some cases, sodium sulphathiazole did not give the control anticipated. Oxytetracycline, though more expensive, appears to give better control. The sulfa drugs have been deleted from the recommended list of antibiotics.

	1963	1964
Number of colonies inspected	9,284	6,127
Number of apiaries inspected	579	440
Number of colonies with American foulbrood	450	520
No cases of European foulbrood were reported.		

Statistics:

	* 1963	** 1964
Number of colonies	71,600	83,850
Number of beekeepers	1,100	1,450
Average yield per colony (lb.)	162	102
Total honey production ('000 lb.)	11,600	8,590
Value of honey ('000 dollars)	1,653	1,245
Value of wax and honey ('000 dollars)	1,728	1,303
Price of honey per pound	14¼c	14½c
Price of wax per pound	45c	45c

*Final

**Preliminary Estimate

SPECIAL PROJECTS

Requests for the construction of new Seed Plants was greater than in any previous year. An Investigating Committee was appointed to examine the various requests. Investigations showed most requests were due to existing Plants working on a twenty-four hour schedule during March, April and May, and they were unable to meet all the requests for cleaning at that time. Experience has proved that Plants must be operated on a year round basis and can not survive economically by cleaning for three months of the year. Much progress was made during the last fifteen years with regard to year round patronage, however more has to be done in order to insure financial success of the Plants and adequate service to the farmers. An educational program is being initiated in this regard.

New Plants were built at Medicine Hat, Coronation, and Warburg. The Plants at Coronation and Warburg were of "open floor" design, and although these Plants have some advantages with regard to convenience it is unlikely many more will be built, at least in the next few years, due to the increased labour costs for construction.

A summary of the work done by the fifty Plants for the period July 1st, 1963 to June 30th, 1964:

Total Commercial Seed Cleaned	11,512,026
Total Pedigree Seed Cleaned	191,572
Total Seed Cleaned	11,703,598
Total Dockage Cleaning	1,192,389
Total Bushels Cleaned	12,895,987
Total Bushels Treated (Fungicide)	4,866,863
Total Bushels Treated (Wireworms)	1,015,705
Average Number of Bushels Cleaned Per Plant	258,461

CROP CLINIC

Laboratory technician, Miss Rita Brick, who came on staff in August, assumed a wide range of responsibilities in the handling of specimens and equipment at the Clinic. The Supervisor, on October first, began seven months education leave to attend the University of Alberta. During the year, the Supervisor and Dr. Henry, Plant Pathologist, attended 11 meetings and conferences, made 12 field trips, attended 9 short courses and conducted 20 special investigations.

The following table lists the number of specimens received by the Clinic for diagnosis, identification, and recommendations:

	Diseases	Insects	Plant Identification	Misc.	Total
Cereals and Forage	88	39	......	......	127
Special Crops	5	4	......	......	9
Ornamentals	130	113	......	......	243
Shelterbelts	25	37	......	......	62
Vegetables	119	28	......	1	148
Fruits	40	33	......	......	73
Stored Products	......	7	......	......	7
Household	......	54	......	......	54
Miscellaneous	......	18	41	20	79
Weeds	......	......	221	......	221
TOTAL					1,023

Insects

Wheat and barley seedlings in an area north-east of Edmonton were affected with a type of damage similar to that which is commonly associated with wheat shoot miner. Larvae and pupae believed to be the wheat shoot miner were recovered, in the fall, from wheat and barley samples from scattered locations in west-central Alberta, and the Peace River block. Glassy cutworm damage was noticeable in lawns at several locations in the central part of the province. Spruce needle miners were found in Edmonton and Smoky Lake districts. Boxelder twig borers, not previously reported by the Clinic, were received from Wainwright. Poplar and willow root borers (probably **Hepialidae sp.**) were found in specimens from Millet and Peace River. Raspberry root borers and cane borers appeared to be more widespread, especially in older plantings. Tarnished plant bugs were very numerous in June, over most of the province, and were responsible for temporary set-backs to several different kinds of woody and herbaceous ornamentals. Poplar bud gall mites were identified on hybrid poplar specimens from as far north as Fort Saskatchewan and Viking. The main infestation (with serious damage to a number of well established shelterbelts) appeared to be still centred south and east of Lethbridge. Larvae of the strawberry root weevil caused the loss of many two and three year old spruce at Oliver, and were suspected of causing damage to conifers elsewhere.

Diseases

Two virus diseases, wheat streak mosaic and leaf roll in potatoes reached serious proportions. Mosaic was responsible for the loss of several hundred acres of winter wheat in the Lethbridge area in the spring. The effect of leaf roll on potato yields was difficult to estimate. The effect on quality was quite noticeable. Early blight of potatoes, also, was widespread in central and northern Alberta. Reports were received of serious vegetable losses due to storage rots. Aster yellows reached serious proportions in at least one commercial field of carrots.

In cereals, net blotch and scald of barley leaves was widespread in central and northern areas. Uncommon diseases of cereals such as wheat and barley scab and powdery mildew of wheat, occurred in unusual proportions, associated with wet conditions in northern Alberta. Scabby barley poses a possible toxic threat in hog feeding. Among non-parasitic diseases, grey speck of oats (a nutrient deficiency) is becoming increasingly common. Unfavorable moisture supplies, particularly in the north-east section, caused much white spot of alfalfa leaves. High temperatures in some areas, in early June, caused leaf banding of cereals.

Septoria canker of hybrid poplar has reached serious proportions in central Alberta and threatens to eliminate all but resistant strains. A crown rot of red elder poses a similar threat. Shelterbelt plantings of China willow were hard hit by Cytospora fungus which blackens and kills the branches. Fortunately, permanent injury may be averted by severe pruning.

Plant Identification

The usual variety of plants ranging from algae and fungi to trees, shrubs and weeds were received for identification. Very few of the weed specimens were of a noxious type. Of such, however, scentless mayweed was received from more widely scattered locations than in previous years. Also, a species of mallow **(Malva crispa)** occurred frequently as a garden and windbreak pest. Poison mushrooms **(Amanita sp.)** sent six people to hospital, at one location. The poison weeds water hemlock, seaside-arrowgrass, and larkspur were the ones most commonly associated with cattle deaths from suspected plant poisoning.

Miscellaneous

The Clinic handled a few complaints of birds and animals as household or crop pests. A large proportion of the numerous household insects received were forwarded on to the Entomology Division of the Provincial Department of Health, due to possible health implications. Numerous telephone calls were answered and, all written enquiries also received prompt attention, with the best information readily available.

Report of the Livestock Branch

1964

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W. C. GORDON, B.Sc., P.Ag., Livestock Supervisor (Cattle)
A. J. CHARNETSKI, B.Sc., P.Ag., Livestock Supervisor (Sheep & Swine)
R. A. REDDON, B.Sc., M.Sc., P.Ag., Livestock Supervisor (Swine)
I. A. COLES, B.S.A., Supervisor of Feeder Associations
J. S. LORE, B.Sc., P.Ag., Livestock Supervisor (R.O.P. Cattle)
H. B. JEFFERY, B.S.A., M.Sc., P.Ag., Livestock Supervisor (A.I.)
J. J. KALLAL, Livestock Fieldman (Cattle)
S. B. CLARKE, Brand Recorder
J. BELZER, Livestock Investigator
(H. M. LINK, Supervisor of Brand Inspection and L.I.D. Pounds)

The outstanding feature of Alberta's 1964 livestock position was the continued pressure on cattle prices and the adjustments that took place in relative values between cattle of various grades. In spite of the north American cattle population being at its highest point in history, prices of "good" steers advanced on Alberta markets about $2.00 per hundred from January to June. This attracted a few loads of American finished cattle into Alberta. By fall the price had dropped back to about the same low level as at the beginning of the year and remained there until the year end. Pressure remained particularly strong on lower quality feeder steers and on feeder and stocker heifers and heifer calves.

Hog marketings were up about 14% from the previous year. Prices showed less fluctuation but the average price for the year was roughly $2.50 per hundred less than in 1963.

There was somewhat greater optimism in the sheep industry brought about by a general average increase in the price of lambs and range ewes. However, Alberta's sheep population continued to decline and the proportion of range ewes sold to other provinces would indicate that this trend will continue.

CATTLE

Cattle were in good condition following the 1963-64 winter season. Calf losses were above average due to April weather conditions.

Early spring pastures were poor.

Quality of roughage was poor in most areas.

There was a shortage of suitable roughage in some areas for 1964-65 winter supplies.

Extreme December weather resulted in some cattle losses.

Cattle and calf population was estimated at 3,135,000 at June 1st, 1964 which was 6.8% higher than June 1st, 1963.

Stock inspection figures indicated an increase of 8.2% in marketings compared to 1963.

Brand Inspection Record of Live Cattle and Calf Shipments Out of Province

	1960	1961	1962	1963	1964
British Colubia	82,831	71,275	56,543	54,459	50,308
Saskatchewan	4,619	8,933	6,747	2,686	2,063
Manitoba	25,463	14,657	19,868	6,960	4,712
Ontario	77,423	98,727	81,587	70,015	80,130
Quebec	15,267	3,017	1,776	1,105	2,904
Nova Scotia	1,492	1,675	145	16	......
New Brunswick	......	......	632	340	63
United States	45,112	110,502	107,084	27,143	10,920
Newfoundland	......	......	......	......	40
Prince Edward Island	......	......	......	......	......
TOTAL	252,207	308,786	274,382	162,724	151,140

Purebred breeders sold 3,564 beef bulls through 32 consignment sales that were approved by the Department. Sales were held at the following points: Grande Prairie, Olds (three), Calgary, Edmonton, Innisfail, Red Deer, Lethbridge (two), Camrose, St. Paul, Stettler, Vermilion, Fort Macleod, Mayerthorpe, Medicine Hat, Westlock, Cereal, Lloydminster, Brooks (two), Taber, High River, Lacombe, Drumheller, Empress, Didsbury, Hardisty, Athabasca, Thorhild and Sangudo.

Breed	No. Sold	Total Value	Average Price
Hereford	2,546	$1,418,736.00	$557.00
Aberdeen Angus	671	334,000.00	498.00
Shorthorn	347	146,990.00	424.00

Average prices held at much the same level for Hereford and Angus but were down slightly for Shorthorns as compared to the previous year.

Cattle Improvement Policy

Policy "A" continued to operate on the basis of bulls purchased by the Department to fill orders as received from eligible applicants.

There was no change in the operation of Policy "B" which applied to the 32 sales listed above.

The following table shows the placement of bulls under Policy "A" and the numbers of bulls on which the bonus available was claimed under Policy "B" for the past five years.

Year	Policy "A"	Policy "B"
1960	1,911	1,690
1961	1,961	1,686
1962	1,248	1,563
1963	67	1,477
1964	53	1,478

FEDERAL-PROVINCIAL BEEF CATTLE PERFORMANCE TESTING PROGRAM

This program was initiated in the fall of 1959 and the procedure through which it came into being can be found in the 1959 Annual Report.

An Annual Report of the Alberta section of the Federal-Provincial Beef Cattle Performance Testing Program is printed at the termination of each year's results in June. Copies can be obtained from the Livestock Branch.

The following table shows the extent of participation by pure bred breeders in the last five years:

Year	No. of Herds	Male Calves Weighed	Female Calves Weighed	Total Calves Weighed
1960	63	987	823	1,810
1961	60	1,112	1,015	2,127
1962	75	1,421	1,306	2,727
1963	90	1,584	1,502	3,086
1964	96	1,853	1,747	3,600

18 new herds entered the program this year while 12 dropped out.

In addition to the purebred herds, six members of the Alberta Beef Cattle Performance Association requested supervision of weights, and approximately 1,200 head of commercial cattle were weighed.

The Alberta Advisory Committee of Performance Testing met on February 6th in Calgary and May 4th in Bassano. Committee study emphasized the need of further field work, the place of central testing stations and the role of governments and private industry in developing such stations. The Committee recommended that any Alberta test stations should operate within the general framework of the recently adopted Federal Test Station regulations.

Two private Beef Performance Test Stations established in Alberta in 1963 operated with 75 bulls completing test in the spring and 37 bulls going on test in the fall. In addition to the bulls there are 150 steers at the Bassano station on a progeny test of 15 sires.

The application of performance testing to livestock production was discussed at 6 field days and 21 meetings with an attendance of 696 people.

The National R.O.P. Committee met in March and formulated a National Beef Performance Test Station Policy.

TORONTO ROYAL AGRICULTURAL WINTER FAIR

The 1964 Royal Agricultural Winter Fair was held November 13th to 21st. The Alberta livestock exhibit consisted of 20 carloads which were shipped via C.N.R. The shipment loaded in Edmonton and Calgary on November 5th with the two sections joining in Saskatoon November 6th.

The exhibit included 40 single steers, 5 carload lots of 12 steers, 3 groups of 5 steers, 79 beef breeding stock, 33 dairy cattle, 19 hogs, 44 sheep and 15 horses.

The Alberta Department of Agriculture received nominations, co-ordinated selection, assembled the shipment and provided feed and bedding from point of assembly until return. The arrangement whereby freight charges are borne 75% by the Canada

Department of Agriculture and 25% by the Alberta Department of Agriculture continued in force. Selections were made by persons appointed by the various breed associations under the directions of the Livestock Board.

The following table summarizes prizes won by Alberta exhibitors:

	Horses	Beef & D.P. Cattle	Market Cattle	Dairy Cattle	Sheep & Wool	Swine	Total
Grand Champion	.....	.....	.....	.....	1	1	2
Reserve Grand Champion	.....	1	.....	.....	.....	.....	1
Champion	2	.....	2	.....	3	1	8
Reserve Champion	1	3	1	.....	3	.....	8
First Prize	6	9	7	1	11	1	35
Second Prize	3	7	9	.....	8	1	28
Third Prize	2	13	8	3	7	2	35
Fourth Prize	3	8	4	1	8	2	26
Other Prizes	1	49	13	19	18	9	109
TOTAL	18	90	44	24	59	17	252

Outstanding Achievements:

L. M. Rye, Edmonton—1st prize two horse light draught Clydesdale team
L. M. Rye, Edmonton—1st prize two horse heavy draught Clydesdale team
L. M. Rye, Edmonton—1st prize four horse Clydesdale team
L. M. Rye, Edmonotn—1st prize six horse Clydesdale team
L. M. Rye, Edmonton—Reserve Champion Clydesdale gelding
Stanley Brown, Tofield—Junior Champion Percheron stallion
C. H. Trautman, Rimbey—Junior Champion Palomino mare
Highland Stock Farms, Calgary—Reserve Senior Champion Angus female
Kallal Hereford Ranch, Tofield—Reserve Junior Champion Hereford bull
G. R. Powlesland, Del Bonita—Reserve Junior Champion Hereford female
G. R. Powlesland, Del Bonita—Reserve Grand Champion Hereford female
D. A. Mouser, Claresholm—Champion Suffolk ram
D. A. Mouser, Claresholm—Reserve Champion Suffolk ewe
John Wilson, Jr., Innisfail—Champion Corriedale ram
John Wilson, Jr., Innisfail—Reserve Champion Corriedale ewe
John Wilson, Jr., Innisfail—Champion and Reserve Champion Range Fleeces
John Wilson, Jr., Innisfail—Grand Champion fleece
Tom Hudson, Kathyrn—Junior Champion and Grand Champion Yorkshire Boar
McIntyre Ranching Co. Ltd., Lethbridge—Champion Hereford Steer
James Forsythe, Crossfield—Reserve Champion Group of 5 steers
McIntyre Ranching Co. Ltd., Lethbridge—Champion carload Steers

LIVESTOCK FEEDER ASSOCIATIONS

Thirty-six feeder associations operated under the Feeder Association Guarantee Act during the 1963-64 season. There were 1,492 active members who fed 51,382 cattle and 5,067 lambs, utilizing a credit of $5,854,345.80.

Twenty-four associations operated under annual guarantee and twelve associations operated under continuous guarantee.

All loans under the 1963-64 annual guarantees were repaid.

Loans outstanding at August 31st under the continuous guarantees totalled $1,360,392.83, covering 12,980 cattle.

East Central Feeders' Association Ltd. amalgamated with Central Alberta Livestock Feeders' Association Ltd. The name of the continuing association is Central Alberta Livestock Feeders' Association Ltd.

East Bow Valley Livestock Feeders' Association Ltd. and Tilley-Rolling Hills Livestock Feeders' Association Ltd. amalgamated with Bow Valley Livestock Feeders' Association Ltd. The name of the continuing association is Bow Valley Livestock Feeder's Association Ltd.

The Feeder Associations Guarantee Act was amended on March 26, 1964, which increased the total amount of borrowings under this Act by a feeder association, to a maximum of five hundred thousand dollars at any one time or such lesser amount as the Minister may prescribe for a particular association.

At December 31, 1964, there were thirty-three associations operating under the Act; twelve under continuous guarantee and twenty-one under annual guarantee.

1963-64 Feeder Association Operations:

Association	No. of Members	No. of Cattle	No. of Sheep	Credit $
Acme	30	1,024	......	112,264.81
Andrew-Willingdon	21	574	......	66,220.98
Barrhead	17	389	......	43,727.63
*Bashaw	71	2,975	......	364,767.22
Battle River	65	1,836	......	233,637.22
Big Valley	36	1,297	......	166,238.08
Bowden	28	862	......	117,538.24
Bow Valley	62	2,193	224	210,621.40
Cardston	36	1,239	......	157,801.85
*Carstairs	43	1,673	......	200,978.88
*Central Alberta	59	2,100	501	244,401.12
Central Peace	29	603	......	58,759.80
*Delburne	23	1,250	......	94,377.63
Drumheller	21	662	......	92,175.24
*East Central	61	2,333	1,428	267,401.66
East Olds	45	1,599	......	186,000.65
Glenwood	12	319	303	35,444.48
*Grande Prairie	66	2,026	......	214,424.73
Innisfail	25	892	......	98,644.30
Knee Hill Valley	48	1,557	......	201,415.09
*Little Bow	56	1,886	......	224,766.72
Mannville	29	1,024	......	86,203.66
Marwayne	50	1,522	......	167,918.97
Meadowbrook	47	1,915	......	220,711.86
North Peace	51	1,330	......	129,637.44
*Okotoks	31	1,171	......	122,592.48
*Parkland-Stavely	48	1,728	......	194,468.75
Ponoka	57	1,833	......	252,876.81
*Raven	40	1,821	......	189,227.89
Raymond-Magrath	12	439	125	43,725.22
*Red Deer	43	2,050	......	222,313.80
South Slope	58	1,990	379	202,048.44
Taber	36	1,258	1,597	173,330.38
Tilley-Rolling Hills	72	1,864	423	192,031.11
*Vegreville	21	489	......	51,098.23
Western	43	1,659	87	214,553.03
TOTAL	1,492	51,382	5,067	5,854,345.80

*Associations operating under continuous guarantee.

Summary of Feeder Association Operations covering the past five years:

Feeding Season	No. of Associations	No. of Members	Cattle	Sheep	Amount of Credit
1959-60	33	1,201	37,194	13,350	4,303,155.09
1960-61	36	1,262	41,743	23,730	4,684,108.24
1961-62	38	889	28,246	10,884	3,130,628.90
1962-63	35	1,201	38,393	7,599	4,776,559.93
1963-64	36	1,492	51,382	5,067	5,854,345.80

ARTIFICIAL INSEMINATION

Expansion of A.I. in terms of cows bred and herds serviced has continued but at a lesser rate during 1964. Breedings during the last half of 1964 generally were lower than the year previous, partly because of drought and low cattle prices. The onset of an extremely cold winter also interfered with "heat detection".

Cows Bred Artificially in Alberta by Breed—1958-1963:

	1958	1959	1960	1961	1962	1963
Holstein	23,939	30,785	37,475	42,326	46,645	48,013
Ayrshire	2,143	2,396	2,934	3,051	3,060	2,669
Guernsey	1,049	1,325	1,840	2,122	2,188	2,213
Jersey	2,055	2,432	2,891	3,103	2,944	2,876
D.P. Shorthorn	1,074	1,703	1,901	2,120	2,049	1,887
Red Poll	264	260	254	252	361	126
Brown Swiss	......	15	186	847	1,270	2,022
TOTAL Dairy	30,524	38,916	47,481	53,821	58,517	59,806
Herefords	2,995	4,550	7,509	8,195	8,684	10,018
Angus	1,126	2,081	3,479	5,604	7,271	9,147
Shorthorn	1,064	1,171	1,544	2,652	2,074	2,110
Charolais	1,106	1,970	2,450	2,790	3,369	3,425
Other	......	46	86	81	512	270
*TOTAL Beef	6,291	9,824	15,068	19,322	21,910	24,970
TOTAL Breedings	36,815	48,740	62,549	73,143	80,427	84,776
Percentage Female Breeding Population	3.5	4.5	5.7	6.4	6.9	7.2
No. of Herds	4,854	6,172	7,796	7,940	9,287	9,572

*Includes all cows of ALL BREEDS BRED to Beef Bulls.

The Provincial Regulation governing A.I. in Alberta became effective June 1st, 1964. Licences were issued for the operation of 38 Inseminating Businesses and 14 Branch Offices. 119 licences were issued to Technicians authorizing the Insemination of Domestic Animals and 12 licences were issued to Technicians authorizing the collection and processing of semen. One Semen Producing Business involving the Artificial Insemination of Swine was licenced.

82 A.I. technicians were up-graded from Class I to Class II. 53 technicians who were eligible wrote the Provincial Examinaton, 48 of these qualified for Class II. Previous to the examination these people were circularized with study material. Two training programs in Animal Reproduction were carried out in Edmonton with an attendance of 41 technicians. Several attending had previously qualified for Class II. 39 satisfactorily completed the course.

An educational committee representing the A.I. industry in Alberta was formed and developed plans and course schedule for a 3 month post-diploma course in Animal Reproduction to start on January 4th, 1965 at the Vermilion Vocational Agricultural College with a full enrollment of 12 students.

New A.I. Associations were organized at Smoky Lake and Grand Centre. A summer operation was conducted at Coronation by the Ontario Association of Artificial Breeders. Branch offices were established at Bowden by Mountain View Breeders' Association and at Camrose by Alberta Breeders' Service. Canadian Breeders' Service sold their branch offices at Lethbridge, Taber and Vauxhall to Dr. George Allen of Taber. Central Cattle Breeders' at Innisfail was sold to Alberta Breeders' Service. Macleod Proved Sire Service was established at Fort Macleod by Drs. Martin and Beste. The Unit at Standard, Alberta discontinued operation. The Eckville Artificial Breeding Unit discontinued their swine operation in November. Approximately 140 sows were serviced over 16 months of operation with an average non-return rate of 65%.

The principles of sire evaluation have been discussed with Unit directors, managers, technician groups and farmer groups. The need for continuation of this type of education is indicated.

Too many cows in Alberta continue to be serviced by sires of low production proof or with no production proof. Unit reports for the first 8 months of 1964 show 25,072 cows serviced to semen from Holstein sires. 10,432 of these services were to non-proven sires. 3,987 to sires with an effective daughter rating below -3; 2,079 to sires rated from -3 to 0; 4,308 from 0 to +3; and 4,266 over +3.

All bull semen used in Alberta came from one of three sources; the Ontario Association of Artificial Breeders, the B.C. Artificial Inseminating Centre and American Breeders Service. In 1963 49,687 cows were serviced to Ontario semen, 29,310 to B.C.A.I. semen and 5,779 cows to A.B.S. semen. Average non return rate for the year was 67.1%. The lowest reported average was 54% and the highest 74.6%.

In June the O.A.A.B. commenced direct truck delivery of liquid nitrogen and semen to all affiliated units in Western Canada. All units in Alberta on a frozen semen program are now using liquid nitrogen storage. In 1963 28.8% of the cows were serviced to fresh semen and 71.2% to frozen semen.

69 meetings and short courses were attended with a total attendance of 2,374. Included were 17 annual A.I. Association meetings and 10 Directors meetings.

Direct personal contact was made with 24 Alberta A.I. Units. Articles of information were circulated to A.I. units, technicians and District Agriculturists throughout the Province. 2 TV and 6 radio broadcasts were carried out relative to artificial insemination.

DAIRY HEIFER CALF POLICY

This policy operated as in previous years. One hundred and sixteen calves were delivered to sixteen different 4-H dairy clubs.

SWINE

The feeling of uncertainty and change so evident in pig production practices during 1963, was not so apparent this past year. Producers appeared to adopt the attitude of obtaining as much information as possible prior to the construction or renovation of barns and facilities or the changing of their production practices, whereas a year earlier many untried ideas were being incorporated into pig operations without too much consideration as to their cost or value.

Interest in pig production remained at a fairly constant level throughout the year. The twenty percent decline in the number of pigs marketed in 1963 as compared to 1962 was almost completely regained in 1964 despite a lower average price. The market price for carcasses ranged from a low of $22.50 to a high of $26.00 per cwt. the second week of April and June respectively, with $23.90 per cwt. the average Edmonton price for 1963 versus $26.40 a year ago. Monthly average prices fluctuated within a very narrow range, the low being $22.64 per cwt. for the month of April, the high $25.00 per cwt. for July. The Federal deficiency floor price of $23.65 remained unchanged as did the premium of $3.00 on a grade "A" carcass.

Throughout the year the topic of quality as it pertains to the carcass came under close scrutiny. The Canadian Federation of Agriculture sponsored a nation wide conference at Montreal which was attended by a number of Alberta producer representatives, and by the Livestock Commissioner. This conference covered the broad field of swine production with emphasis on quality. Subsequent to the Montreal meeting, Alberta swine groups held 4 meetings in working toward the establishment of an Alberta swine council. Provincial swine councils subordinate to a Canada council appear imminent and it is likely that work done to date will result in the industry assuming a cohesion that heretofore has not existed. The branch has worked closely with the industry in reorganization toward this end.

Prices paid for breeding stock at the swine sales were essentially unchanged from the 1963 average and most animals sold. Producers appeared more and more cognizant of the value of Record of Performance stock and animals combining desirable phenotypic qualities with good R.O.P. scores sold well above the average at most sales. The Alberta Healthy Herd Program continued to exert its influence on health standards and there was still some interest in S.P.F. animals. Connaught Medical Research Laboratories, Toronto, distributed some S.P.F. stock but the demand was not great.

Record of Performance testing facilities, as in previous years, operated at capacity. Construction was started on a new Federal Test Station at Lacombe.

During the period April 1st, 1963 to March 31st, 1964, fifty-two breeders tested 142 litters (sows); 87 Yorkshire, 53 Lacombe and two Landrace. An additional thirty litters, ten Yorkshire and twenty Lacombe were home tested by twenty breeders. The Provincial policies pertaining to R.O.P. and swine improvement continued on the same basis as in 1963. The Livestock Commissioner continued to act as Chairman of the Alberta R.O.P. committee.

Price Average Covering all Alberta Sales (including R.O.P.)

	Boars				Sows			
	1963		1964		1963		1964	
Breed	No.	Av. Price	No.	Av. Price	No.	Av. Price	No.	Av. Price
Yorkshire	541	99.68	517	101.64	618	107.55	703	101.52
Tamworth	15	94.16	12	95.42	8	93.12	2	80.00
Landrace	1	60.00	2	92.50	......	......	9	92.78
Lacombe	94	113.96	64	111.60	102	98.00	75	101.23
Total & Av.	651	101.47	595	102.55	728	106.19	788	101.37

Average Price for all Swine Breeds at Calgary and Edmonton Sales

	1963		1964	
	No.	Av. Price	No.	Av. Price
Boars	318	111.59	305	111.89
Sows	389	117.52	476	110.43

Average Price of Lacombe Breed Special Sale

	1963		1964	
	No.	Av. Price	No.	Av. Price
Lacombe boars	13	161.15	17	109.71
Lacombe sows	22	87.38	14	77.32

Average Price at Camrose R.O.P. Swine Sale

	Boars				Sows			
	1963		1964		1963		1964	
Breed	No.	Av. Price	No.	Av. Price	No.	Av. Price	No.	Av. Price
Yorkshire	75	89.23	36	107.29	56	76.02	18	105.00
Lacombe	15	92.33	10	114.75	17	81.77	5	101.50
Total & Av.	90	90.33	46	108.91	73	77.22	23	104.24

Swine Placed Under Livestock Listing Bureau and Improvement Policies "A" and "B"

	L.L.B.		Policy A	Policy B
Year	Gilts	Boars	Boars	Boars
1960	3	27	264	370
1961	10	24	186	376
1962	7	22	162	341
1963	13	25	106	373
1964	4	7	93*	405

*This total included 67 Yorkshires, 24 Lacombe, 1 Landrace and 1 Tamworth.

Board of Performance Sow Bonus Policy

Number of sows qualifying for bonus:

Breed	1960	1961	1962	1963	1964
Yorkshire	43	22	20	33	54
Landrace	5	......	......	1	......
Lacombe	9	20	13	22	18
Total	57	42	33	56	72

Alberta Hog Gradings for Years 1960 to 1964

Grade	1960 %	1961 %	1962 %	1963 %	1964* %
A	22.40	27.40	33.10	35.10	36.30
B	47.60	45.40	43.10	42.90	45.20
C	15.20	11.60	8.10	7.40	8.20
Light	3.10	2.80	3.40	2.60	0.70
D	0.90	0.90	1.10	0.70	2.80
Heavy	4.20	3.90	3.60	4.40	4.30
Extra Heavy	1.70	1.70	1.60	1.80	1.90
Injured	......	......	......	......	......
Ridgling	0.50	0.50	0.50	0.60	0.60
Stags	0.60	0.60	0.60	0.40	0.50
Sows	3.80	5.00	4.70	4.10	4.70

*1964 grading percentages exclude sows and stags.

Number and Value of Inspected Slaughter Hogs of Alberta Origin

Year	Total Number	Value per Pig	Total Sale Value
1960	1,764,695	32.76	57,809,266.00
1961	1,659,909	38.89	64,537,262.00
1962	1,674,177	39,80	68,611,312.00
1963	1,350,490	41.22	55,667,363.00
1964	1,554,404	37.52	58,321,238.00

Estimated Number of Swine on Alberta Farms at June 1st, 1964

1960	1,385,000
1961	1,540,000
1962	1,200,000
1963	1,165,000
1964	1,370,000

SHEEP

It is estimated that Alberta Sheep population was reduced by 5% in 1964. Greatest reduction occurred in the range areas partially because of withdrawal of grazing lease privileges and partially because of shortage of suitable herders.

The 1964 average price of choice and good market lambs at Edmonton Stock Yards was $19.33 per cwt. compared to $19.00 in 1963. A high of $26.00 per cwt. was reached on the week ending May 26, and the low of $16.25 per cwt. on the week ending September 12. The year closed with an approximate average of $18.50 per cwt. on the two top grades. Good slaughter ewes averaged $5.65 for the year.

Over 90% of all lambs marketed in Alberta graded choice and good. The Federal Stabilization Board Price remained at $18.80, basis national average on choice and good carcasses weighing 36 to 56 pounds inclusive. Federal Premiums on the two top grades dressing 36 to 56 pounds remained at $2.00 per head on choice grade, and $1.00 on carcasses grading good.

Feeder lambs were in keen demand. Prices ranged from $16.00 to $20.50 per cwt. Estimates indicated that approximately 35,500 feeder lambs went to Alberta feed lots this fall, compared to 62,500 last year. Several car loads of lighter feeder lambs were purchased by eastern buyers. Exports to U.S.A. were negligible.

Over 2,000 range breeding ewes from Brooks and Lethbridge areas were purchased by eastern sheepmen at prices ranging from $7.00 to $25.00. Some lots of particularly well grown Romnelet ewe lambs of good type sold for herd replacements at prices up to $26.00 per head.

The 1964 wool clip was 1,882,000 pounds, a 2% reduction from last year. The average yield per head was 9.6 pounds. Trade acceptability was high, as Alberta wool growers are taking greater care in the preparation of their clips for market. The Federal wool deficiency price remained at 60 cents F.O.B. Toronto. The approximate net average for Alberta wool, including a deficiency payment of eleven to twelve cents, was 50 cents per pound.

Assistance has been given in the culling of several sheep flocks and in the selection of breeding ewes and rams at various sales. Several sheep meetings were held where feeding, management and the outlining of modern breeding programs were discussed. Six sheep shearing and management schools were held with three being of two day duration at each of the three Agricultural and Vocational Colleges.

Sheep cross breeding demonstrations and evaluation program was continued at the three Agricultural and Vocational Colleges. This work is now concluded except for final data processing.

The R.O.P. sheep testing program is being conducted at Vermilion, Olds and Fairview Colleges. Information gained from cross breeding work at these Colleges will assist to more accurately evaluate R.O.P. results. The Olds College established a small flock of purebred Dorset Horn sheep.

The Sheep Improvement Policies A and B continued to operate without revision from the previous year. Sheepmen not qualifying under these Policies may obtain rams and ewes under the Livestock Listing Bureau, by paying the full purchase price, including transportation charges.

The following statistical data provides details on the operation of the Sheep Improvement and the Livestock Listing Bureau Policies:

Year	L.L.B. Gr. Ewes	L.L.B. Rams	Policy "A" Rams	Total Bonus Policy "B" Rams	Total all Rams
1960	140	6	93	116	215
1961	120	13	56	74	143
1962	......	3	30	45	78
1963	......	3	36	26	65
1964	......	3	34	35	72

Composite Summary of Purebred Sheep Sales at Calgary and Edmonton

Rams	1962 No.	1962 Av. Price	1963 No.	1963 Av. Price	1964 No.	1964 Av. Price
Suffolk	41	53.23	23	65.32	57	62.45
Hampshire	11	56.13	15	51.00	16	44.06
Border Cheviot	2	32.50	1	35.00	2	45.00
N.C. Cheviot	24	47.50	21	62.38	19	51.05
Corriedale	6	60.83	3	64.17	10	68.00
Southdown	4	40.00	3	43.16	4	47.50
Oxford	3	40.83	4	35.00	......	......
Columbia	2	45.00	3	72.50	......	......
Total & Average	93	50.99	73	58.79	108	56.53

Ewes

	1962		1963		1964	
Ewes	No.	Av. Price	No.	Av. Price	No.	Av. Price
Suffolk	34	33.68	8	36.69	9	57.78
Hampshire	4	15.00	7	22.14	4	26.25
N.C. Cheviot	19	31.31	7	27.50	3	45.00
Corriedale	3	32.50	......	......	......	......
Oxford	1	30.00	3	22.75	2	20.00
Columbia	14	32.37	......	......	......	......
Southdown	......	......	......	......	3	26.66
Total & Average	75	32.37	25	24.34	21	41.90

Average Comparative Price of "A" and "B" Grade Rams—Calgary and Edmonton Sales

	"A" Grade Rams		"B" Grade Rams	
Year	Number	Price Average	Number	Price Average
1961	79	60.04	61	45.20
1962	82	52.89	14	39.65
1963	42	64.94	31	50.46
1964	77	60.49	31	49.59

Number and Value of Alberta Sheep and Lambs Sold at Inspected Plants

	Total No. Sold	Value Per Head	Total Sales Value
1962	197,232	14.94	$2,947,347.00
1963	166,952	16.07	2,684,057.00
1964	166,504	16.47	2,743,085.00

Estimated Number of Sheep in Alberta at June 1st

1960	555,000
1961	554,000
1962	445,000
1963	424,000
1964	409,000

HORSES

The population of horses on Alberta farms at June 1st was estimated at 96,000 head. This represented a decrease of about 6½ percent from the previous year. Auction markets sold 12% more horses than in 1963.

The general pattern of horse production has been a gradual decrease each year for many years, with the transfer of interest and activity away from the breeding of heavy horses to the breeding of light horses. There is demand for a limited number of well broken heavy horses but the breeding of heavy horses has deteriorated to a point that the excellent type of horse required, especially for export demand, is not available in sufficient numbers to build up a trade. The bulk of horse marketings is based on meat horses.

ALBERTA LIVESTOCK AND LIVESTOCK PRODUCTS ACT

Stockyards and Stockyard Licensing

Three hundred and forty-eight stockyard licences were issued in 1964, compared to three hundred and seventy-nine in 1963.

Eight licences were altered due to change in ownership, reclassification or discontinuance, resulting in three hundred and forty stockyards being in operation at the end of 1964.

The following table shows licences issued by classes:

Class	B	C	D	E	F	G	Total
Number	14	36	57	4	4	233	348

A total of 52 Class "D" Stockyards were in operation at December 31st, 1964.

The following table shows the number of livestock sold at Class D Stockyards (Auction Markets) during the year 1964:

	1960	1961	1962	1963	1964
Cattle and Calves	276,612	350,020	396,800	424,551	472,008
Hogs	224,521	303,416	271,754	293,779	456,528
Sheep	29,014	32,224	41,919	31,797	30,408
Horses	8,940	8,200	10,935	9,729	10,197

Class "E" and "F" Stockyards operating at Pincher Creek, Lundbreck, Pakowki, Park Bend, Walsh, Lea Park, and Empress handled 28,848 head of cattle, compared to 23,507 in the previous year.

Livestock Dealers and Dealer's Agents

No changes were made in the livestock dealer's regulations in 1964. Proceedings were started for recovery from the bonds of six dealers.

Dealers and Agents totalled 891 in 1964, compared to 936 in 1963, a decrease of about 4.9%.

There were seven prosecutions and a number of warnings issued for dealing without a licence.

Stockyards were visited whenever possible and a number of investigations were conducted as a result of complaints from producers, market operators and shippers of livestock with respect to trade practices.

RECORDING OF BRANDS

Following is a summary of brand recording activity:

	Cattle	Horses	Sheep	Poultry	Fur Bearing	Total
New Brands Issued	2,060	137	......	......	......	2,197
Transfers Registered	390	44	......	......	......	434
Certified Extracts Issued	2	......	......	......	......	2
Brands Renewed	6,874	783	......	......	......	7,657
Brands Cancelled	304	39	......	......	......	343
Total	9,630	1,003	......	......	......	10,633

The number of brands in good standing at December 31, 1964:

Cattle	34,650
Horses	4,035
Sheep	22
Poultry	7
Fur Bearing	......
Total	38,714

There were a total of 3,105 letters written during the year, which dealt with the new applications, transfers, unregistered brands, and other items pertaining to the work carried on in the Brand Office.

In addition to the foregoing there was a supplement to the 1962 Alberta Brand Book compiled and published, which contained a record of Brands allotted, transferred, or reissued from July 1, 1962 to June 15, 1964. Five hundred copies were ordered and these were received from the Printers on September 18, 1964.

THE STOCK INSPECTION ACT

Regular and part time brand inspectors conducted inspections at 70 market inspection points as well as at numerous feedlots and loading points, mainly for export shipments.

Total inspections of 1,893,376 head, made up of 1,608,724 inspections through markets and on export, and 284,652 head returning from markets to feedlots and pasture, set a record of inspections for any one year.

The number of stock held up for further investigation numbered roughly 2,000 head. All were cleared by local inspectors' investigation with the exception of 62 files covering 81 cattle that were forwarded to Branch headquarters for further investigation.

Two hundred and twelve Butchers and Hide Dealers were licensed in 1964. Most butchers were visited and their records of slaughterings checked and discussed with them. There was one prosecution for shipping livestock out of the Province without an inspection.

Continued increase in number of cattle marketed and increase in number of inspection points necessitated strengthening of inspection services. This was done by appointment of a Brand Inspection Supervisor and two regional Inspection Fieldmen working from Edmonton and Calgary. This reorganization became effective on August 1st.

IMPROVEMENT DISTRICT STRAY ANIMALS ACT

Three new pound districts were established which brought the total number under this act to one hundred and forty-nine. Some special problems arose with herds owned by persons not residing in the district, and consequently not under effective control. The increase in this problem appears to be proportionate to the increased number of town and city residents who are purchasing cattle to run on recently acquired grazing land.

THE HORNED CATTLE PURCHASES ACT

A slight increase from 8% to 8.3% of cattle marketed were horned. This situation appears to arise from increased marketing of calves resulting in neglect to dehorn, thereby passing the problem to the second owner.

The following table shows the percentage of cattle with horns marketed at the main market centres for the past four years with the base point of 1949.

	1949	1961	1962	1963	1964
Edmonton	19.9	11.0	11.2	10.9	10.9
Calgary	15.6	6.5	5.9	5.6	6.4
Lethbridge	......	5.8	7.3	5.4	6.0
Medicine Hat	......	......	3.1	3.5	4.5

GENERAL

An important aspect of Livestock Branch services is in the area of livestock extension. Branch personnel serviced numerous extension meetings, short courses and field days dealing with all aspects of livestock production. Following is a summary of meetings and official duties conducted:

Farm Visits	Meetings and Short Courses	Livestock Judging Assignments	Culling and/or Purchasing at Sales	Stockyard Visits
1,167	323	70	60	333

Mr. S. B. Clarke, Brand Recorder, retired on December 31st and that position was filled by the appointment of Mr. R. S. Smith.

Mr. Fred Judin resigned from the inspection service at Lloydminster and his position was filled by appointment of Mr. R. Bouck.

Other appointments in the brand service included Mr. H. M. Link as Supervisor of Brand Inspection; Mr. R. W. Boggs as regional inspection fieldman at Edmonton; Mr. H. G. Pallister in the similar position at Calgary and Messrs. A. Galarneau, E. Court and R. A. Sewall as full time inspectors.

During the year the Livestock Commissioner acted on the Marketing Legislation Study Committee and attended meetings at Montreal, Toronto, Ottawa and Many Glaciers, Montana relative to various livestock matters.

ACKNOWLEDEMENTS

The Branch continued to enjoy the support and co-operation of the various livestock interests including breed associations, all segments of the trade, exhibition and sale associations. Also the support of the R.C.M. Police in matters of investigation and enforcement. The co-operation of other Branches and Departments of the Government and of the Federal Production and Marketing Services was extremely helpful. All assistance and co-operation from these agencies was much appreciated and is hereby acknowledged.

Report of the Dairy Branch

D. H. McCALLUM, B.S.A., P.Ag., Dairy Commissioner
G. A. MacALLISTER, B.Sc., P.Ag., Supervisor, Dairy Plant Inspection
R. P. DIXON, B.Sc., P.Ag., Supervisor, Dairy Cattle Improvement
V. W. KADIS, Ph.D., Director, Dairy Laboratory
L. H. ARNOLD, Supervisor, Frozen Food Plants
W. A. McGRATH, Charge of Dairy Statistics

GENERAL REVIEW

Milk production during 1964 totalled 1,719,411,000 pounds, an increase of approximately 2 percent over 1963. This increase was attained with 3,000 less milk cows and poor pasture conditions during the early summer, in the northern areas, where dairying plays a more significant role in farm operations. The average milk production per cow was 6,275 pounds, whereas the average of the 17,000 cows being tested under the provincial cow testing plan was 11,008 pounds. Both figures represent new all time high levels of production for the average of all Alberta cows as well as those under test. Farm prices for milk and cream showed little change from the previous year, however, the increased production resulted in an increase of approximately 2 million dollars in the estimated farm value of milk production which totalled $52,925,000. Subsidy payments to producers under the Agricultural Stabilization Act were modified slightly at May 1st, the beginning of the new dairy year. The subsidy on butterfat for creamery butter dropped from 14.5 to 13.3 cents per pound, but the support price for butter was increased by one cent which meant that producers received the same initial price as during the previous year. Instead of a 30 cent subsidy per 100 pounds of milk used in the manufacture of cheese, a subsidy of 3.6 cents per pound was paid on Canada first grade cheese. This change reduced payments to producers if unsatisfactory manufacturing methods resulted in undergrade cheese.

The estimated plant value of manufactured or processed products amounted to $59,139,000 representing a new high value and an increase of 1.8 million dollars over the previous year. There was an increase in the percentage of the total milk utilized in the manufacture of creamery butter, ice cream, and cheddar cheese; whereas lower percentages were utilized for fluid sales, farm dairy butter, and fed to farm animals. More than half (54.2%) of the total milk was utilized for the manufacture of creamery butter.

The quality of dairy products, as evidenced by the grading reports from the Federal Department of Agriculture, was well maintained with 96 percent of the creamery butter being classified as Canada first grade.

The amendments to the Frozen Food Act, which became effective January 1st, 1964, resulted in an additional 43 specialized processing plants being licensed during the year. While the number of lockers rented and food stored in frozen food locker plants declined, the quantity of food processed increased by approximately 7.5 million pounds, bringing the total for 1964 to 24,478,000 pounds.

ESTIMATED FARM VALUE OF ALBERTA MILK PRODUCTION 1964

The quantity, price, value and utilization of milk production during 1964 is reported in the following table. To indicate changes from the previous year, the 1963 figures have been included.

	Year	Pounds	Milk Equivalent Pounds	Percent Total Milk	Price	Value
Butterfat for Creamery Butter	1964	32,257,000	931,882,000	54.2	66.7 per lb.	$21,514,000
	1963	31,158,000	900,128,000	53.2	65.7 per lb.	20,477,000
Farm Dairy Butter	1964	1,438,000	33,649,000	2.0	56.0 per lb.	805,000
	1963	1,740,000	40,716,000	2.4	56.0 per lb.	974,000
Milk and Butterfat for Ice Cream (milk basis)*	1964		26,473,000	1.5	2.83 per 100 lbs.	749,000
	1963		20,098,000	1.2	2.80 per 100 lbs.	563,000
Milk for Cheese-making and Concentrating	1964		136,052,000	7.9	2.80 per 100 lbs.	3,816,000
	1963		136,183,000	8.1	2.83 per 100 lbs.	3,853,000
Fluid Milk Sales	1964		278,409,000	16.2	4.78 per 100 lbs.	13,316,000
	1963		277,894,000	16.4	4.63 per 100 lbs.	12,862,000
Cream Fluid Sales (milk basis)	1964		69,326,000	4.0	2.82 per 100 lbs.	1,957,000
	1963		69,335,000	4.1	2.79 per 100 lbs.	1,935,000
Milk Farm Home Consumed	1964		153,400,000	8.9	2.77 per 100 lbs.	4,249,000
	1963		154,300,000	9.1	2.70 per 100 lbs.	4,166,000
Fed Farm Animals	1964		90,220,000	5.3	2.77 per 100 lbs.	2,499,000
	1963		93,500,000	5.5	2.70 per 100 lbs.	2,524,000
Kept on Farms Skimmilk from Creamery Butter and Skimmilk and Buttermilk from Dairy Butter	1964	837,449,000			.48 per 100 lbs.	4,020,000
	1963	822,469,000			.44 per 100 lbs.	3,619,000
Total	1964		1,719,411,000	100.0		52,925,000
	1963		1,692,154,000	100.0		50,973,000

*Does not include butterfat from creamery butter used in the manufacture of ice cream.

ESTIMATED PRODUCTION AND VALUE OF FACTORY DAIRY PRODUCTS

The following table shows the quantity, price and value of dairy products manufactured or processed in Alberta dairy manufacturing plants during 1964 with corresponding figures for 1963 added for sake of comparison.

	Year	Quantity	Price	Value
Creamery Butter, lbs.	1964	39,824,000 1/	$ .5248 per lb.	$20,900,000
	1963	38,467,000 1/	.5348 per lb.	20,572,000
Cheddar Cheese, lbs. (including net increase in processing)	1964	2,438,000	.4024 per lb.	981,000
	1963	1,769,000	.3799 per lb.	672,000
Ice Cream, gallons*	1964	4,541,000	1.47 per gal.	6,675,000
	1963	4,389,000	1.47 per gal.	6,452,000
Fluid Milk Sales, lbs. (including processing charges)	1964	278,409,000	6.44 per 100 lbs.	17,930,000
	1963	277,894,000	6.27 per 100 lbs.	17,424,000
Cream as Milk, lbs. Fluid Sales (including processing charges)	1964	69,326,000	4.48 per 100 lbs.	3,106,000
	1963	69,335,000	4.43 per 100 lbs.	3,072,000
Skimmilk and Buttermilk Sales for Human Consumption (including processing charges)	1964	23,934,000	3.79 per 100 lbs.	907,000
	1963	23,328,000	3.62 per 100 lbs.	844,000
Skimmilk, Buttermilk, lbs.	1964	44,767,000	.48 per 100 lbs.	215,000
	1963	43,977,000	.44 per 100 lbs.	193,000
Whey, lbs.	1964	20,808,000	.24 per 100 lbs.	50,000
	1963	15,380,000	.22 per 100 lbs.	34,000
Miscellaneous Manufactured products**	1964			8,375,000
	1963			8,020,000
Total	1964			59,139,000
	1963			57,283,000

*Includes hard and soft ice cream.

**Includes concentrated milk products, cottage cheese, whey butter, cheese other than cheddar and yoghurt.

1/ Includes subsidy payment of 12 cents per pound on butter from January 1, to April 30, 1963, and 14.5 cents per pound on butterfat from eligible producers from May 1, 1963, to April 30, 1964, and 13.3 cents per pound from May 1 to December 31, 1964.

BRANCH EXTENSION ACTIVITIES

Branch representatives attended and addressed meetings on dairy production, feeding and management, processing, and manufacturing, as well as meetings held in connection with the processing and storage of frozen foods. Considerable time was spent by branch personnel attending special committee and board meetings concerned with the dairy and frozen food industries. Branch personnel also gave assistance with 4-H dairy club activities such as achievement days, fairs and special meetings.

Monthly newsletters, circulars and bulletins were prepared and distributed, in addition press, radio and TV information was again prepared by branch personnel. In co-operation with the Department of Dairy and Food Science at the University and Canadian Vocational Training, a four week short course was conducted for dairy plant men in November. The first two weeks of the course covered such topics as dairy plant sanitation, and the grading and testing of dairy products; while the last two weeks were spent in processing butter, cheese (cheddar and cottage), and evaporated milk. Twelve students from various points in the province attended the course and all were successful in receiving certificates of achievement.

Periodic examinations were conducted by branch personnel throughout the year to enable candidates to qualify for milk and cream graders and testers licenses. Similar examinations were held for tank milk graders.

Official weight certificates covering a total of 10,044 boxes and representing 4,816,636 pounds of creamery butter were issued to Alberta manufacturers supplying butter to the Agricultural Stabilization Board.

DAIRY PLANT INSPECTION AND INSTRUCTION SERVICE

Dairy Plant Changes

A total of 115 licensed dairy manufacturing plants operated during the year. The majority of the plants conducted a combined operation such as the manufacture of creamery butter and the processing and distribution of fluid milk. On April 1st, the Westlock plant of the Northern Alberta Dairy Pool Limited was completely destroyed by fire; however, a new structure was built and operations were resumed early in July. Also in April, the milk distributing operation, previously carried on by Fletcher Brothers at Brant, was taken over by the High River Creamery which continued to deliver pasteurized milk to Blackie, Vulcan and Brant. On May 1st, the Northern Alberta Dairy Pool Limited assumed operation and management of the Co-operative Creamery Association at Viking. A producer-distributor dairy operation at Oyen was discontinued early in May. The Central Alberta Dairy Pool completed a new plant at Stettler which was put into operation early in July. On July 9th, the Chipman plant of Palm Dairies Limited was completely destroyed by fire and was not rebuilt. In November, the South Edmonton Creamery, which had been in continuous operation since 1925, was closed with the ice cream and butter operations being transferred to the north side plant of Palm Dairies Limited. Late in the year, construction commenced on an extensive addition to the South Edmonton milk plant of Palm Dairies Limited. At Lac la Biche, extensive renovations were made to the creamery and the equipment modernized. A pilot project was introduced by Purity Dairy, Edmonton, which moulded plastic milk bottles for use in the fluid milk trade. During the year, an addition was made to the United Irrigation District Co-operative Cheese Factory at Glenwood, increasing the processing and storage area of the plant. Because of unprecedented levels of milk production and a sales potential that did not keep pace, the Carnation Company at Wetaskiwin was forced to readjust the schedule of milk production and reduced the number of evaporated milk shippers late in 1964 by 125.

Inspection and Instruction

During 1964, no changes occurred in the branch field staff of eleven dairy specialists.

A total of 1,351 plant inspections were carried out by the field staff at licensed operating plants. Check tests were conducted on 27,739 shipments of milk and cream for butterfat. In addition, 87,318 lots of churning cream were check graded. Adjustments to correct variations in plant testing and grading were made on 2.3 percent of the samples checked. Periodic tests as a check on the moisture content of creamery butter samples, at the various creameries, numbered 200.

Bulk Milk Handling

The conversion to the bulk method of handling milk continued and this trend was more noticeable with manufacturing milk suppliers to the powder plant at Camrose and the Red Deer condensery. The total number of farm bulk tanks in operation at the end of 1964 was 966. Dairy Branch personnel throughout the province continued to check the installation and calibration of new farm bulk tanks as well as rechecking some previous installations. Field personnel check weighed 87 milk transportation tank loads of milk delivered to the principal milk sheds during the year as a check on weights determined by dip stick readings by licensed tank milk graders.

Quality Control and Competions

Interest in the production of quality dairy products was maintained throughout the year. The Quality Control Advisory Committee and its four technical subcommittees, which deal with specific phases of quality, held several meetings throughout the year. The Food and Drug Directorate of the Department of National Health and Welfare made numerous spot checks lifting milk samples at cheese factories, condenseries, powder plants, etc., as a check on bacteriological quality and sediment. To assist producers in meeting Food and Drug standards for manufacturing milk, Dairy Branch field staff increased their activities through farm visits and organized meetings of milk producers in an effort to improve milk quality at the farm level.

Exhibits of creamery butter, although down in numbers from previous years, won a fair share of the awards at leading Canadian exhibitions, including the Toronto Royal. The Northern Alberta Dairy Pool Limited, Edmonton, and Palm Dairies Limited, Calmar, each won a special award. The annual competitions based on the commercial grading of such products as cheese and butter throughout the year were conducted by Dairy Branch personnel. Scoring panels for ice cream and cottage cheese were conducted on four different occasions at Edmonton and Calgary under the supervision of local dairy specialists. In order to encourage improved housekeeping in the dairy industry, all plants were scored by branch personnel. The top scoring plants were reviewed by head office personnel and winners determined. Plants scoring 75 percent or more were awarded merit certificates and these numbered 52. To encourage improvement in some of the older plants, a new section was added to the Good Housekeeping Competition for the first time.

Licenses

Licenses issued in 1964 with corresponding figures in brackets for 1963 are listed below:

Form "A" Milk and Cream Testers	266	(267)
Form "B(C)" Cream Graders	214	(214)
Form "B(M)" Milk Graders	153	(165)
Tank Milk Graders	119	(115)
Form "C" Dairy Manufacturing Plants	115	(119)

Margarine and Imitation Dairy Products

At the 1964 Session of the Alberta Legislature, amendments were made to the Margarine Act which permitted the coloring of margarine a deep shade of yellow. These amendments also included certain requirements with respect to packaging and labelling margarine.

During the year, random samples of margarine from all manufacturers were collected at retail stores and subjected to composition and color analyses by branch personnel. Reports indicated that all samples complied with the composition standards, while four samples violated the color requirements. Retail outlets were checked periodically to ascertain if imitation dairy products, prohibited by the Dairymen's Act, were being offered for sale.

DAIRY CATTLE IMPROVEMENT SERVICE

Division Activities

1. The principal activity of this division during 1964, was the Cow Testing Service. The appointment of a dairy production specialist in the person of Arnold A. Hughes early in the summer facilitated the field work of the section. Visits to testing centres, correspondence, and record analysis studies were carried out by the supervisor and production specialist throughout the year. On October 1, 1964, the supervisor of Dairy Cattle Improvement was granted leave of absence for post-graduate training and the dairy production specialist took over the supervisory responsibilities of the division.

2. With the appointment of a full time supervisor of artificial insemination by the Department of Agriculture, this division was relieved of the responsibility of conception rates and bull selection assistance to artificial insemination units. The division, however, co-operated with the supervisor of A.I. units in providing assist-

ance at the A.I. technician course in Edmonton, and in serving on the A.I. Advisory Committee.

3. As in past years, extension activities included dairy field days, judging dairy cattle at 4-H shows and exhibitions, Dairy Princess Competition and the Edmonton Grassland Improvement Competition.

4. Cow testing workshops were held at Leduc, Camrose and Calgary early in the year where herd owners were assisted in analyzing their cow testing records. This division also co-operated with other branches in offering production schools and short course meetings throughout the province.

Cow Testing

An all time record of 17,004 cows tested with an all time high average production of 11,008 pounds of milk and 381.8 pounds of butterfat highlighted the Cow Testing Service for 1964.

The 524 herds under test in 1964 represented a net increase of 1,671 cows and 28 herds over 1963.

During 1964, a total of 88 new herds and 2,721 cows were placed under test, while 1,602 cows in 60 herds discontinued.

(a) Mail Order

This was the basic program offered to 395 herd owners throughout the province. Monthly milk samples were lifted by the herd owners from individual cows and forwarded to one of the testing centres for testing by Dairy Branch officials. Milk from each cow was either weighed daily (Plan 1) or weighed on one day a month (Plan 11) by the herd owners.

The following table shows the number of herds and cows tested under the mail order system during the past three years.

	No. of Herds			No. of Cows		
	1962	1963	1964	1962	1963	1964
Plan I	97	91	86	2,217	2,300	2,241
Plan II	295	286	309	7,765	7,888	8,950
Total	392	377	395	9,982	10,188	11,191

From the table, it can be seen that an additional 18 herds and 1,003 cows were tested under this program during 1964 than in 1963.

(b) Owner-Sampler Route Plan

This program operated only in the Edmonton area. Under this program, a full time fieldman visits each farm monthly picking up samples lifted by the herd owner. Heifer calf identification and eartagging is carried out at the time of the monthly visit.

The following table shows the number of herds and cows tested under the owner-sampler route plan system during the past three years.

	No. of Herds			No. of Cows		
	1962	1963	1964	1962	1963	1964
Plan I	5	3	2	238	96	67
Plan II	99	116	127	4,266	5,049	5,746
Total	104	119	129	4,504	5,145	5,813

The number of herds and cows tested under this program has increased steadily every year since first inaugurated in June, 1954.

A total of 10 more herds and 668 more cows were tested under the owner-sampler route plan during 1964 than 1963. The fieldman made 1,475 farm visits, eartagged 1,485 heifer calves and maintained calf record books for 113 herd owners during 1964.

A total of 26 new herds were put under test in 1964 and one herd transferred from the route plan to the mail order program.

Testing Centres

Testing centres were in operation at the locations shown in the table below. A full time laboratory technician, assisted by the fieldman and the addition of a full time laboratory assistant in August did the testing of an increasing number of samples at the Edmonton centre. At the other centres the resident dairy specialist did the testing assisted by the part-time clerical help. The Ponoka testing centre ceased operations on February 1, 1964. Herds under test at Ponoka were transferred to the Camrose and Edmonton centres. The Vermilion testing centre commenced operations on December 1, 1963. A number of herds under test at the Edmonton centre were transferred to the Vermilion centre.

The following table shows the number of tests conducted at each centre during the past three years.

Testing Centres	1962	1963	1964
Edmonton	52,027	54,025	63,174
*Ponoka	13,549	11,855	2,436
Red Deer	16,656	17,584	18,751
Calgary	9,862	10,509	11,782
Lethbridge	7,183	8,008	9,196
Fairview	2,515	2,752	2,743
Camrose	......	2,458	9,445
**Vermilion	......	......	3,527
Total	101,792	107,191	121,054

*Discontinued February 1, 1964.

**Commenced operation December 1, 1963.

A total of 13,863 more tests were conducted in 1964 than in 1963.

The following table indicates the extent to which the two plans of testing were utilized by herd owners and shows the average production under each plan, together with the provincial average for all cows on test. Comparable figures for 1963 are shown in brackets.

SUMMARY

	Plan I*		Plan II*		Total	
No. of herds under test	88	(94)	436	(402)	524	(496)
No. of cows under test	2,308	(2,396)	14,697	(12,937)	17,004	(15,333)
Average number of cows per herd	26.2	(25.5)	33.7	(32.2)	32.5	(30.9)
No. of Cow Years (T)	1,643	(1,759)	10,563	(9,159)	12,206	(10,918)
Average number of cow years per herd	18.7	(18.7)	24.2	(22.8)	23.3	(22.0)
Average production of milk (pounds)	10,572	(10,127)	11,076	(10,823)	11,008	(10,711)
Average production of butterfat (pounds)	374.8	(364.2)	382.9	(370.3)	381.8	(369.3)
Average Test (%)	—	(—)	—	(—)	3.47	(3.45)

*Plan I —Daily weighing and monthly tests.

**Plan II —Computed records from one day's weighing and monthly tests.

(T) Herd averages on the basis of cow years. The total number of cows on test during the year was used in determining the herd average, except where new cows were placed on test, or a cow was sold or died; in these cases only that part of the year in which she produced was used.

The average production of all cows on test showed an increase of 297 pounds of milk and an increase of 12.5 pounds of fat during the year 1964 as compared to 1963.

Reports and Competitions

1. During 1964 graded certificates of production were issued for all cows completing the necessary production and recording requirements. The new type of certificate introduced in 1963, showing every lactation for all cows under test, has been particularly well received by the herd owners. Subsequent records will be added to these certificates when completed. A certificate record book is provided to the herd owner.

2. Annual reports showing both total and average milk and butterfat production were sent to all herd owners as well as district agriculturists' offices.

3. An Honor Roll, listing all herds of 5 cow years or more and producing an average of over 400 pounds of butterfat, was compiled. A total of 137 herds qualified in 1964 as compared to 105 in 1963.

4. Higher production and herd improvement was encouraged through competitions sponsored by the Alberta Dairymen's Association. Financial assistance for prizes was received from dairy supply firms, while the Dairy Branch determined the winners from cow testing records.

LABORATORY SERVICE

The laboratory continued its vital role in assisting the dairy and food industries in the production of safer and higher quality products. The services also ensured the consuming public that dairy products sold in Alberta meet the standards established by the federal, provincial and municipal health authorities.

Although the mastitis control program was transferred to the Provincial Veterinary Laboratory, the volume of work in the Dairy Laboratory increased slightly over the previous year. During 1964, 36,970 samples (involving in some cases as many as seven different tests per sample) were analysed.

Late in 1963, the laboratory purchased equipment for the purpose of checking milk supplies for radioactive Iodine-131 and Cesium-137. This equipment was installed and calibrated early in 1964, and checking of milk samples from all parts of the province has been carried out since early May.

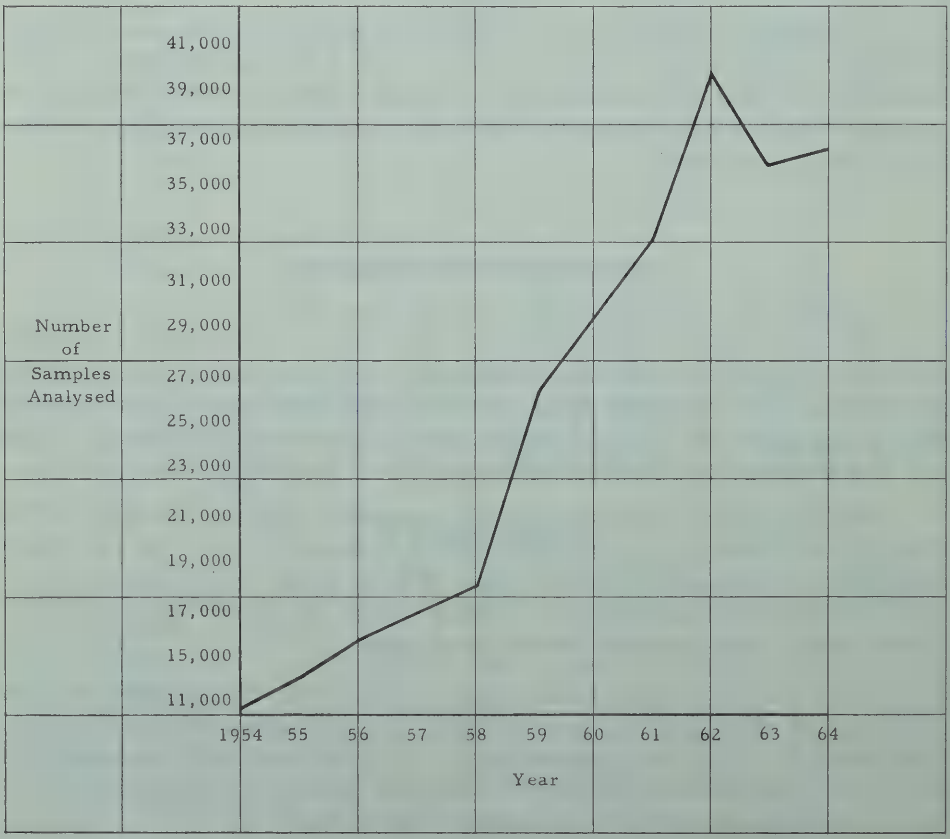
The laboratory once again was chosen by the Federal and Provincial Departments of Health as an investigation centre in this province for pesticide residues in food products. The study was continued with financial assistance from the federal government. In addition to dairy products previously investigated, meat, eggs, honey, and other foods were analysed. More emphasis was placed on the exploration of new techniques for pesticide residue detection, and on the modification and application of some procedures for routine use in smaller laboratories.

As in the past few years, the laboratory assisted the Provincial Department of Public Health by surveying dairy herds for the presence of Q-fever.

There was a noticeable increase in the number of milk samples analysed during 1964. This was primarily due to interest in the quality of raw milk for manufacturing purposes following the establishment of standards for this product by the Federal Food and Drug Directorate.

A number of technical and scientific meetings were attended in Alberta, other parts of Canada, and the United States, and contributions were made at these meetings by laboratory personnel. Several reports were prepared and published or submitted to the federal and provincial authorities.

The following graph illustrates the increase in laboratory activity from 1954 to 1964:



The table below indicates the number and type of samples analysed, and the corresponding figures for the previous year.

	1964	1963
Milk Control Services	14,316	12,972
Butter Samples for Moulds and Yeasts	3,760	3,953
Butter Samples for pH Values	1,853	1,955
Milk Samples for Q-Fever	4,413	1,987
Milk Samples for Antibiotics	4,623	2,727
Water Adulteration of Milk	2,858	2,954
Bacterial Creamery Survey	835	668
Mastitis Control Service	......	5,798
Cheese Samples	109	109
Ice Cream Samples	872	745
Meat Curing Brines	253	279
Eggs and Egg Products	265	933
Pesticide Residues in Dairy and Other Products	407	323
Radioactivity in Milk	123	......
Miscellaneous	2,283	904
Total	36,970	36,326

FROZEN FOOD PLANTS

Officials of the branch continued to provide a service to the industry by means of licensing, inspection and instruction to all frozen food plants. During the year, a total of 1,043 inspections were made compared to 872 for 1963. Dairy specialists also lifted 225 brine samples which were tested for percent of salt and bacteriological quality at the Dairy Laboratory.

Specialized processing plants were licensed under The Frozen Food Act for the first time in accordance with Act amendments which became effective January 1, 1964. Considerable time was spent by the field staff and the supervisor assisting operators to plan new plants and alter others to conform to The Frozen Food Act and Regulations.

Locker plants at Crossfield, Hussar, Hythe, Medicine Hat, Millet, Okotoks, and Picture Butte discontinued operations during the year. Two processing plants in the city of Edmonton also discontinued operations. At the year end, there were 107 locker plants, 3 animal food storage plants, and 43 specialized processing plants in operation.

The scoring of all plants for the Merit Award Competition and for proficiency certificates was again undertaken by the field staff, while officials from head office re-scored the top plants in each district. Twenty-four proficiency certificates were issued to operators who met the high standards of plant operation, sanitation and services offered. Winners of the 1963 Merit Award Competition were presented with trophies and certificates at the annual convention of the Alberta Quick Freeze Locker Association which was held in the Capri Motor Hotel at Red Deer, February 9th and 10th, 1964. The shield for Section A (plants with over 300 lockers) was won by Redi-Food 'N' Freezers of Edmonton, Taber Frozen Foods of Taber, and Hanna Co-op. Lockers, Hanna, placed second and third respectively. Olson and Sons of Sexsmith won the shield for Section B (less than 300 lockers), while Denoon's Meat Market and Locker Plant of Nanton and Spoor's Meat Market and Lockers of Rocky Mountain House placed second and third respectively in this section.

The following statistics indicate the operations of all licensed frozen food plants which were operating at December 1st, 1964. Statistics for the previous 12 months are included for comparison.

Frozen Food Plant Operations

	1964	1963
No. of specialized processing plants	43	......
No. of animal food storage plants	3	3
No. of frozen food locker plants	107	114
No. of lockers installed	23,171	26,695
Average No. of lockers installed	217	234
No. of lockers rented	14,875	17,692
Percentage of lockers rented	64.2	67.3
Average pounds processed per locker	256.2	279.8

Locker rentals again declined during the year under review. As in past years, the decline in rentals was due mainly to the increased number of home freezers in use. The volume of processing for lockers was down from the previous year, however, the increase in volume for home freezers offset this loss. The 43 specialized processing plants that were licensed under The Frozen Food Act processed 7,350,709 pounds of food products for their patrons which represents a gain from the previous year in total volume processed by all licensed plants.

The following tables indicate the trend in the locker plant industry over a period of years. It will be observed that the volume of processing for lockers has decreased each year, whereas the volume for home freezers has increased steadily. Several plants have discontinued operations during the past few years, while others have discontinued renting lockers, but are now operating as specialized processing plants.

Locker Plant Operations

Year	No. of Plants Operating	No. of Lockers Installed	No. of Lockers Rented	Per Cent of Lockers Rented	Average Lbs. Per Rented Locker
1945	61	16,770	13,572	80.9	326.0
1950	141	48,647	43,802	90.0	305.2
1955	153	51,488	43,608	84.7	307.9
1960	136	37,646	26,316	69.9	329.6
1961	131	34,125	23,881	69.9	292.9
1962	121	29,770	20,305	68.5	289.5
1963	114	26,695	17,962	67.3	286.3
1964	107	23,171	14,875	64.2	242.8

Amount and Type of Food Products Processed in All Licensed Plants

Year	Total Pounds Processed	Fresh Meat %	Cured Meats %	Lard %	Fish %	Poultry %	Big Game %	Game Birds %	Fruits %	Veg. %	Misc. %
1960	18,509,247	77.8	9.6	1.2	.4	2.9	3.4	.1	1.5	1.9	1.2
1962	16,010,445	76.9	9.3	1.2	.4	3.4	4.4	.1	1.2	2.1	1.0
1963	17,126,204	77.8	8.6	1.3	.4	2.7	4.6	.2	1.3	2.0	1.1
1964	24,477,903	82.2	8.4	1.3	.3	1.4	2.2	.1	1.3	2.1	.7

Milk Control Report

Submitted by the

PUBLIC UTILITIES BOARD

J. B. MOORE, Administrator of Milk Control

All areas with the exception of Ponoka continued to show increases in fluid consumption. Increases or decreases were as follows:

Calgary	+5.2%	Camrose	+1.0%
Crow's Nest Pass	+1.3%	Edmonton	+1.0%
Lethbridge	+4.2%	Medicine Hat	+3.3%
Ponoka	—0.1%	Red Deer	+3.6%

Consumption increases were most marked in the Skim Milk and 2% Partly Skimmed Milk products.

Production increased in 5 of the 8 areas reported upon, with the remaining 3—Lethbridge, Medicine Hat and Ponoka—registering decreases of approximately 6%, 2% and 5.5%, respectively.

Licensed distributors increased by 1, to a total of 24 in the controlled areas.

Licensed milk producers increased by 1, licensed cream producers decreased by 9. Totals in the respective categories are 797 milk producers and 53 cream producers. At year's end, 27 milk producers remained unlicensed.

Milk Control Regulations No. 239/60 was amended by Regulation 62/64 and later replaced in its entirety by 396/64.

Seven Orders were issued during the year as follows: Order Nos. 26444, 26445 (Decision), 26459, 26480, 26552, 26684, 26821.

The Board continued its active and financial support of both the Dairy Cost Survey and the several Milk Foundations.

Hearings were held in Calgary, Edmonton and Red Deer.

Board representatives met with other Provincial Milk Boards during the year and continues as a member of the International Milk Control Agencies.

STATISTICAL DATA RELATING TO MILK CONTROL

The Tables which follow relate to milk and cream supplied and sold for fluid consumption in the areas of the Province controlled by the Public Utilities Board during the year 1964.

TABLE I

Consumption of Fluid Milk Monthly, 1964—in Quarts

(Standard, Homo, 2%, Special, Skim)

Area	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
Calgary	2,483,002	2,462,403	2,526,910	2,392,648	2,439,709	2,460,859	2,410,634	2,348,908	2,510,000	2,731,150	2,488,113	2,614,880
Camrose	71,137	70,882	72,404	71,302	73,170	69,479	65,154	66,700	69,909	76,596	70,570	71,010
Crow's Nest Pass	40,347	41,849	41,974	40,096	40,934	39,730	37,923	38,835	39,718	41,803	38,820	40,744
Edmonton	3,021,686	3,072,147	3,096,263	2,941,950	2,988,381	3,014,418	2,668,552	2,701,455	2,927,638	3,311,871	3,113,221	3,210,366
Lethbridge	274,310	273,216	285,714	274,038	279,385	275,754	263,288	284,681	265,604	291,838	268,614	279,391
Medicine Hat	165,720	167,651	171,026	164,907	171,239	171,553	165,911	170,927	165,228	182,753	167,722	170,397
Ponoka	51,917	53,588	51,998	52,853	54,398	53,611	48,686	50,305	51,056	55,159	50,509	55,125
Red Deer	227,461	219,899	221,104	214,276	224,193	216,352	182,866	208,190	224,986	239,899	218,926	223,104

TABLE II

Consumption of 2% Partly Skimmed Milk Monthly, 1964—In Quarts

Area	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
Calgary	412,786	428,292	455,938	443,587	455,508	480,591	423,861	449,880	497,292	552,142	514,415	507,324
Camrose	......	......	......	......	......	......	......	......	......	......	......	......
Crow's Nest Pass	......	......	......	......	......	......	......	......	......	......	......	......
Edmonton	339,546	384,850	415,967	413,957	427,904	435,052	358,675	400,781	478,454	559,533	556,691	553,780
Lethbridge	56,831	55,103	62,531	58,989	62,247	59,640	55,773	59,075	59,694	63,944	60,795	59,071
Medicine Hat	29,222	28,703	30,048	29,584	31,130	30,973	28,852	29,533	29,673	33,139	32,441	31,576
Ponoka	......	......	......	......	......	......	......	......	......	......	......	......
Red Deer	43,390	50,630	52,605	50,698	58,800	57,199	34,213	50,151	63,122	63,683	60,423	59,225

TABLE III

Consumption of Skim Milk Monthly, 1964—In Quarts

Area	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
Calgary	122,578	123,352	127,279	122,054	126,137	126,390	104,264	107,409	117,641	130,278	119,671	121,026
Camrose	......	......	......	......	......	......	......	......	......	......	......	......
Crow's Nest Pass	......	......	......	......	......	......	......	......	......	......	......	......
Edmonton	132,504	134,518	137,490	133,869	134,122	132,265	105,258	108,768	123,890	139,498	132,291	130,285
Lethbridge	11,046	12,003	11,814	11,852	11,272	11,329	10,421	12,005	11,129	13,252	11,430	12,565
Medicine Hat	2,465	2,485	2,457	2,290	2,312	2,307	1,731	1,959	2,094	2,671	2,336	2,233
Ponoka	......	......	......	......	......	......	......	......	......	......	......	......
Red Deer	15,362	15,356	15,937	16,443	15,740	15,347	13,038	13,120	15,012	16,937	14,958	15,751

TABLE IV

Consumption of Chocolate Dairy Drink Monthly, 1964—In Quarts

Area	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
Calgary	88,081	85,022	86,916	86,354	91,157	96,001	90,775	99,137	99,318	107,817	96,252	96,891
Camrose	3,033	3,109	3,325	3,372	2,992	3,224	3,596	3,599	3,183	3,452	2,645	3,415
Crow's Nest Pass	......	......	980	2,536	2,423	2,617	2,635	2,395	1,835	1,660	731	338
Edmonton	132,795	132,699	128,399	127,108	123,887	132,143	125,249	116,951	131,337	152,841	137,229	135,920
Lethbridge	9,022	8,983	9,238	9,018	9,520	10,027	10,917	11,325	10,636	11,096	9,935	10,436
Medicine Hat	7,923	8,604	8,670	8,371	9,427	9,442	10,414	9,674	8,303	9,251	7,931	8,422
Ponoka	313	392	382	329	1,672	2,134	2,209	1,924	1,308	......	......	......
Red Deer	8,656	8,788	7,482	9,313	9,677	10,017	8,385	9,809	8,759	9,503	8,160	8,838

TABLE V

Consumption of Buttermilk Monthly, 1964—In Quarts

Area	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
Calgary	22,992	25,584	25,910	25,999	29,358	31,569	36,831	34,093	25,171	29,179	23,298	21,114
Camrose	626	669	733	916	1,008	997	1,035	1,004	787	853	695	620
Crow's Nest Pass	143	245	172	289	371	349	417	337	309	371	259	169
Edmonton	37,759	42,585	43,366	46,461	49,128	58,951	66,679	50,885	39,098	43,579	37,795	37,146
Lethbridge	2,973	3,657	3,555	3,806	4,241	4,846	6,021	4,954	3,747	3,928	2,250	2,751
Medicine Hat	1,738	2,038	1,993	2,284	2,757	3,396	4,810	3,280	1,857	1,938	1,635	1,590
Ponoka	149	34	221	221	260	380	358	313	224	219	169	181
Red Deer	1,709	1,835	1,913	2,094	2,578	2,382	2,450	2,391	1,773	1,853	1,627	1,723

TABLE VI

Consumption of Fluid Cream Monthly, 1964—In Quarts

Area	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
Calgary	156,145	155,226	162,024	153,381	161,775	159,843	153,892	159,681	151,566	175,075	157,262	161,230
Camrose	3,035	3,100	3,151	3,097	3,164	3,144	3,084	2,981	3,108	3,502	3,044	3,165
Crow's Nest Pass	295	336	363	343	283	257	286	297	254	323	229	482
Edmonton	227,062	226,876	233,117	217,488	225,725	224,766	207,937	216,919	221,599	247,803	230,965	235,670
Lethbridge	18,063	18,640	19,178	18,086	19,432	19,359	19,234	20,037	19,291	20,854	19,377	20,044
Medicine Hat	10,899	11,076	11,341	10,658	11,280	11,079	10,730	11,053	10,127	11,549	10,690	11,288
Ponoka	2,482	2,552	2,478	2,462	2,655	2,592	2,369	2,683	2,574	2,726	2,456	2,578
Red Deer	10,504	11,113	11,290	10,751	9,434	10,749	10,192	10,822	10,519	11,624	10,553	10,810

TABLE VII

Fluid Milk Consumption, 1960-1964—In Quarts

(Standard, Homo, 2%, Special, Skim)

Area	1960	1961	1962	1963	1964
Calgary	24,771,866	24,722,487	26,207,185	28,391,455	29,869,216
Camrose	781,018	782,628	797,632	839,608	848,313
Crow's Nest Pass	571,087	556,297	493,656	476,773	482,778
Edmonton	32,175,479	32,717,544	33,225,546	35,698,537	36,067,948
Lethbridge	3,412,623	3,408,741	3,259,261	3,180,982	3,315,833
Medicine Hat	1,870,094	1,882,136	1,931,535	1,970,063	2,035,034
Ponoka	441,296	407,361	451,627	629,581	629,205
Red Deer	1,922,574	2,052,334	2,186,617	2,529,986	2,621,256
TOTAL	65,946,037	66,529,528	68,553,059	73,716,985	75,869,583

TABLE VIII

Fluid Cream Consumption, 1960-1964—In Quarts

Area	1960	1961	1962	1963	1964
Calgary	1,859,491	1,835,371	1,868,209	1,848,211	1,907,100
Camrose	29,427	31,715	33,805	36,240	37,575
Crow's Nest Pass	4,149	4,589	8,802	4,634	3,748
Edmonton	2,577,486	2,615,477	2,713,408	2,743,344	2,715,927
Lethbridge	234,731	229,285	233,482	224,485	231,595
Medicine Hat	120,574	119,373	129,618	130,004	131,770
Ponoka	30,914	27,285	30,775	32,179	30,607
Red Deer	107,295	115,495	129,453	131,210	128,361
TOTAL	4,964,067	4,978,590	5,147,552	5,150,307	5,186,683
Total in B.F. Equivalent —Lbs.	1,675,372	1,680,274	1,711,561	1,738,228	1,750,505

TABLE IX

Fluid Milk Purchases by Distributing Plants, 1960 to 1964—In Pounds

Area	1960	1961	1962	1963	1964
Calgary	102,916,732	107,131,175	106,037,098	109,308,975	113,072,125
Camrose	2,911,309	2,978,372	2,706,404	2,900,792	2,951,548
Crow's Nest Pass	1,217,513	1,373,700	1,429,400	1,296,300	1,329,100
Edmonton	141,427,090	147,697,071	145,051,248	147,820,425	155,864,855
Lethbridge	24,499,823	25,274,500	25,549,300	27,261,500	25,588,900
Medicine Hat	7,862,646	8,110,100	7,944,300	8,034,600	7,904,300
Ponoka	1,437,490	1,359,758	1,675,308	1,797,565	1,700,689
Red Deer	7,688,980	8,310,071	8,533,444	8,831,241	8,949,612
TOTAL Pounds	289,961,583	302,234,747	298,926,502	307,251,398	317,361,129

TABLE X

Number of Milk and Cream Producers and Distributors Operating on December 31st, 1964 under the Public Utilities Board License

	MILK		CREAM		TOTAL	
Area	Producers	Distributors	Producers	Distributors	Producers	Distributors
Bowden	1	1	......	......	1	1
Calgary	261	6	2	......	263	6
Camrose	6	2		......	6	2
Crow's Nest Pass	6	1	......	......	6	1
Edmonton	441	5	27	......	468	5
Lethbridge	43	2	20	......	63	2
Medicine Hat	20	2	......	......	20	2
Ponoka	4	1	2	......	6	1
Red Deer	15	4	2	......	17	4
TOTAL	797	24	53	......	850	24

TABLE XI

Prices in effect as at December 31, 1964

Area	To Producers Per 100 lbs. 3.5% B.F.	To Consumers Per Quart	10% Substandard Per Pint	18% Table Cream Per Pint	32-34% Whipping Per Half Pint	Chocolate Milk Per Quart	Butter Milk Per Quart	Skim Milk Per Quart
	$	c	c	c	c	c	c	c
Bowden	4.56	.19	......	......	.27	......	......	......
Calgary	5.10	.23	.25	.43	.33	.25	.22	.18
Camrose	4.43	.19	.24		.30	.21	.21	
Crow's Nest Pass	5.25	.24	.30	......	.40	.25	.24	......
Edmonton	5.10	.22	.25	.43	.33	.25	.22	.18
Lethbridge	5.10	.23	.25	......	.34	.24	.22	.17
Medicine Hat	5.10	.23	.25	......	.34	.24	.22	.18
Ponoka	4.75	.20	.24	......	.30	.22	.20	.18
Red Deer	5.10	.23	.25	......	.33	.25	.22	......

Milk to consumer per quart price refers to an imperial quart of "Standard" Milk delivered to "Retail Customers".
December figures are estimates.

TABLE XII

Consumer and Producer Prices in effect in specified cities across Canada

(as at November 1st, 1964)

	Consumer Prices Homogenized Milk—Quarts	Producer Prices—Cwt. B.F. Basis		Differential
	¢	$	%	c
Charlottetown	.23	4.62	3.6	.06
Halifax	.25	5.71	3.7	.03
Sydney	.25	5.90	3.7	.03
St. John	.25	5.45	3.8	.03
Montreal	.25	5.10	3.4	.06
Quebec	.25	5.10	3.4	.06
Toronto	.26	5.26	3.4	.05
Winnipeg	.25	5.10	3.5	.05
Regina	.24	5.34	3.5	.05
Edmonton	.23	5.10	3.5	.05
Calgary	.23½	5.10	3.5	.05
Vancouver	.26	6.04	4.0	.062

Report of the Poultry Branch

(1964)

ROBT. H. McMILLAN, Poultry Commissioner

G. R. MILNE, Poultry Supervisor

Inspectors:

K. Darlington	East Edmonton	J. L. Plumley	Red Deer
K. H. Rowe	West Edmonton	Wm. Hutchison	Calgary
G. E. Patsula	Fairview	R. A. Stafford	Lethbridge
G. O. Johnson	Camrose		

GENERAL REVIEW

Total volume of production of commercial egg production increased 8% in 1964 from that of 1963 bringing it close to that of 1962. Chicken broiler processing increased 19% from 18,000,000 lbs. in 1963 to 22,000,000 lbs. in 1964 while turkey production remained comparable in 1964 to that of 1963.

Year	Egg Station Receipts 30 dozen cases	Chicken Broiler Eviscerated Weight Registered Stations	Turkey-Mature Eviscerated Weight Registered Stations
1963	441,300	18,448,000	13,440,000
1964 (est.)	442,725	22,000,000	13,000,000

The steady decline in total egg receipts evident since 1959, the year the Federal Government introduced the Deficiency Payment Program, was reversed in 1964 when receipts were increased in Alberta by 9.9% and in Canada by 11.6%. Much of this increase occurred in the traditionally low production period of June to September. Returns to producers decreased 5.3c per dozen. A deficiency payment under the Federal Stabilization Board of 2c per dozen Grade A Large and Medium eggs was paid.

	Total Eggs Produced millions of dozens	Weighted Egg Prices to Producers as determined by Registered Egg Station Receipts
Year	Alberta	Alberta
1960	44.0	23.2
1961	41.3	24.4
1962	39.3	25.0
1963	37.0	27.1
1964	40.0	21.8

Production of chicken broilers continued to increase in 1964 despite a surplus carry over from 1963. Specialized, financed production units continued to expand while small independent, sideline operations discontinued. Returns to growers did not exceed 20c/lb. live weight in 1964. Feed companies, hatcheries and processors for a period of 1964 shared a 2c/lb. live weight subsidy to growers to maintain a 20c grower price.

Turkey meat handled through registered processing plants was an estimated 13,000,000 lbs. comparable to that of 1963. Returns to growers were 2c a lb. on the average stronger than 1963 being 26 - 28c per lb. live weight. It was noted the spread between light and heavy weights narrowed. Of concern to Alberta growers and Canadian growers was the importation from the

U.S.A. of turkey, particularly live birds, as there appeared to be an inequality of duty on live birds as compared to dressed.

Contracts for production of commercial eggs, broilers and turkeys, particularly the last two were evident in 1964. Expansion of facilities of production in all phases, egg, broiler and turkey continued in the establishment of economic units or was encouraged by processors to captivate product. A decline in small sideline operations is anticipated. A further increase in commercial egg production capacity in 1964 of 106,350 layers, 78% in cages, to that of 1963 of 105,000 layers, 72% in cages, was observed. Chicken broiler production capacity of commercial units was estimated at 1,800,000 birds per 10 week growing cycle.

FLOCK APPROVAL

The pullorum testing and banding of chicken and turkey hatching egg supply flocks continued in 1964. To handle the bulk of this work seven temporary inspectors were employed from September through December. Females tested for egg replacement purposes in 1964 were .7% less than 1963 and females tested for broiler production decreased .8%. Turkey females tested decreased by 2.8%.

All hatching eggs set in licensed hatcheries must be from inspected and pullorum disease free flocks. Table I summarizes the number of flocks and birds inspected and tested for pullorum disease.

TABLE I

FLOCKS AND FEMALES TESTED, ALBERTA EGG REPLACEMENT AND BROILER

(First Test on Completed Flocks)

Year	Method of Testing	No. of Flocks		No. of Birds	
		Egg	Broiler	Egg	Broiler
1963	Whole Blood	343	250	164,946	162,585
1964	Whole Blood	336	259	180,048	178,296

Average Size of Flock

Year	Egg	Broiler	% Reaction
1963	529	716	.019
1964	536	688	.006

Table II summarizes total turkey flocks and turkeys inspected and banded.

TABLE II

SUMMARY OF TURKEY APPROVAL, 1962-1964

Year	No. of Flocks	No. of Birds	Average Size of Flock
1962	36	55,354	1,537
1963	32	46,704	1,459
1964	23	45,395	1,973

In 1964 67% of the turkey hatching egg supply flocks were Broad Breasted Bronze, 31% Large Whites and 1.6% Small Whites as compared to 68%, 28% and 4% respectively in 1963.

The number of flocks inspected was comparable to 1963. Egg type breeders decreased by .7% and broiler type breeders by 0.8%. A market for Alberta turkey hatching eggs in the United States developed.

LICENSING AND BONDING OF DEALERS IN POULTRY AND POULTRY PRODUCTS

A. PRODUCE — The Poultry Branch administers Regulations Respecting the Licensing and Bonding of Dealers in Poultry and Poultry Products under the Alberta Livestock and Livestock Products Act. Every person carrying on a business as a dealer must obtain a license to conduct such business. As of January 1, 1956, as protection to producers, all wholesale dealers were required to furnish a surety bond in favor of the Minister ranging from $1,000.00 to $10,000.00 dependent upon the volume of business conducted.

TABLE III

Year	First Receivers	Reg. Egg Grading Stations	Reg. Poultry Processing Stations	Reg. Poultry Eviscerating Stations	Reg. Poultry Grading Stations	Temporary Grading Stations	Poultry Packing Stations
1960	17	137	23	13	8	0	0
1961	10	136	23	14	9	0	8
1962	12	125	19	11	8	0	8
1963	10	119	19	11	7	0	9
1964	18	112	19	11	7	0	15

B. HATCHERY — The Poultry Branch administers Regulations Respecting the Production and Sale of Chicks Under the Alberta Livestock and Livestock Products Act. All commercial and custom hatcheries with an incubator capacity of 1,000 eggs or more are licensed. Since 1951 commercial hatcheries are required to furnish a surety bond, in favor of the Minister, for protection of hatching egg producers, ranging from $2,000.00 to $5,000.00 dependent upon incubator capacity.

A continued reduction in numbers of commercial hatcheries operating was noted although total egg setting capacity for the Province was not greatly reduced.

TABLE IV
DEVELOPMENT OF HATCHERIES

Year	Breeder Hatcheries	Commercial Hatcheries	Egg Setting Capacity
1960	6	47	4,684,062
1961	10	43	4,658,339
1962	10	44	4,771,767
1963	7	39	3,811,876
1964	7	37	3,489,636

TABLE V
CHICK DISPOSITION

Year	Hatchability	Chicks Hatched	Chicks Not Sold	Chicks Exported	Chicks Imported	Chicks Remaining in Province
1960	69.4	12,358,830	739,453	525,186	470,192	11,564,383
1961	70.0	14,544,564	679,377	621,299	503,550	13,734,058
1962	70.1	13,084,102	881,652	598,122	569,273	12,173,601
1963	70.2	15,070,648	1,091,460	606,641	879,505	14,252,052
1964	68.7	15,701,591	1,258,299	368,152	481,435	14,556,575

TABLE VI
CHICK PRODUCTION BY TYPE

For Egg Production Type			For Broiler Production Type		
1964	1963	% Change	1964	1963	% Change
6,237,004	6,564,123	—4.9	9,464,587	8,506,525	+11.2

TABLE VII
POULT PRODUCTION

Year	Eggs Set	Eggs Imported	Poults Hatched	% Hatch-ability	Poults Imported	Poults Exported	Poults on Alberta Farms
1960	2,184,672	500,100	1,211,030	55.4	29,482	134,211	1,106,301
1961	3,187,674	1,005,489	1,708,081	53.5	46,804	196,860	1,558,025
1962	2,667,391	64,600	1,375,515	51.3	14,040	41,944	1,347,611
1963	2,362.591	207.194	1,291,485	54.6	58,048	86,028	1,241,742
1964	2,099,610	49,352	1,136,876	54.1	41,946	48,499	1,130,323

Poult production in Alberta hatcheries in 1964 was 1,136,876 poults, a decrease of 12% over 1963.

Importation of U.S. franchised strains remained the same in 1964 as 1963. These accounted for 73% of the egg type chicks 85% of the chicken broiler type chicks, and 67% of the meat type turkey poults.

TABLE VIII
IMPORTATION FROM THE UNITED STATES
1964

	CHICKEN				TURKEY			
	From Egg Production Matings		From Broiler Production Matings		From Meat Production Matings		From Broiler Production Matings	
	Eggs	Chicks	Eggs	Chicks	Eggs	Poults	Eggs	Poults
January	......	......	......	8,251	......	......	28,162	......
February	......	3,808	......	9,470	......	......	23,979	......
March	9,575	11,441	......	33,976	9,198	......	25,400	......
April	......	23,910	......	16,527	49,964	......	15,200	......
May	......	6,951	18,000	19,084	43,200	1,600	31,800	......
June	......	1,402	5,760	31,665	......	12,600	14,200	......
July	......	......	......	10,087	......	800	23,400	......
August	......	......	......	11,158	......	200	23,989	......
September	30,960	......	11,040	18,234	......	......	35,400	......
October	......	1,375	......	6,769	......	......	16,400	......
November	......	750	......	8,371	......	20,000	24,400	1,700
December	......	2,400	......	9,046	......	......	49,400	......
TOTAL	40,535	52,037	34,800	182,638	102,362	35,200	311,730	1,700

THE POULTRY INDUSTRY

Egg marketings at registered egg grading stations are indicated in Table IV. These receipts represent an estimated 46% of the total production, comparable to 1963. Weighted egg prices to producers decreased 5.3 cents per dozen over 1963.

TABLE IX

	Egg Receipts at Registered Egg Grading Stations (30 dozen cases)	Weighted Egg Price to Producers by Grade per Dozen
1960	497,537	23.2 cents
1961	484,906	24.4 cents
1962	473,071	25.0 cents
1963	442,725	27.1 cents
1964	486,597	21.8 cents

TABLE X
POULTRY EVISCERATED IN REGISTERED STATIONS
(Pounds)

	CHICKENS			
Year	Under 4 lb.	Over 4 lb.	Fowl	Ducks
1960	7,807,623	848,534	2,053,831	33,507
1961	14,121,713	1,372,489	2,334,092	5,348
1962	14,031,000	870,000	2,185,000	5,000
1963	18,448,000	641,000	2,118,000	6,000
1964	21,962,000	1,108,000	2,434,000	19,000

	TURKEYS				
Year	Under 10 lb.	10 to 16 lb.	Over 16 lb.	Total	Geese
1960	......	......	......	9,167,814	418,787
1961	337,973	7,109,576	7,106,494	14,554,043	556,451
1962	492,000	4,352,000	7,328,000	12,172,000	470,000
1963	750,000	4,446,000	8,248,000	13,444,000	434,000
1964	1,223,000	4,022,000	7,332,000	12,577,000	457,000

The laying hen numbers and market turkey numbers on Alberta farms are indicated in Table XI.

TABLE XI

FARM POPULATION

Year	Laying Birds	Turkeys
1960 (D.B.S.)	2,825,000	975,000
1961	2,730,000	1,184,000
1962	2,400,000	820,000
1963	2,170,000	765,000
1964	2,835,000	750,000

ALBERTA RANDOM SAMPLE TEST

The Alberta Random Sample Test, completing the 500 day egg production test period in August showed the highest level of performance yet attained at this Test. The eleven entries represented commercial stock from breeders in Alberta, B.C., Saskatchewan, Manitoba, Ontario and the U.S.A. Most of these stocks were widely distributed in this province. All factors of economic importance were evaluated for each stock and compared one against the other.

The following table compares average egg production and average laying house mortality for the seven completed tests:

Test	Egg Production per Hen Housed	Laying House Mortality
First	201.2	14.8%
Second	219.7	10.7%
Third	213.8	9.0%
Fourth	229.3	6.6%
Fifth	226.0	5.4%
Sixth	217.4	10.7%
Seventh	238.2	3.6%

The Seventh Test again demonstrated that Alberta breeders were competitive to imported stock in that two Alberta breeders ranked in the first quartile.

The following table indicates the performance in some of the factors tested of entries in the Seventh Test:

TABLE XII

SEVENTH ALBERTA RANDOM SAMPLE TEST

Entrant	Egg Prod. Per Hen Housed	% Grade A Large Eggs	% Laying House Mortality	Lbs. Feed per Dozen Eggs	Net Income Per Hen Housed
1	243.6	65.9	3.0	4.5	$2.50
2	241.7	58.6	3.0	4.8	2.21
3	247.1	66.5	4.0	4.3	2.45
4	230.5	59.9	2.0	5.3	1.74
5	231.8	60.0	6.0	4.5	2.25
6	229.8	62.0	6.0	4.6	2.11
7	246.7	71.6	2.0	4.7	2.44
8	235.5	67.6	3.0	4.5	2.38
9	248.5	62.6	3.0	4.3	2.56
10	226.0	64.3	7.0	4.8	2.08
11	239.1	75.4	1.0	4.8	2.43
Average	238.2	64.9	3.6	4.6	2.29

Detailed reports were forwarded to the entrants at three month intervals, and the Final Report distributed to a large mailing list and made available for publication in poultry journals. Also results of the Test, as well as results of research and practical experience were passed on to producers, hatcherymen, and interested persons by members of the Poultry Branch staff.

POULTRY SHOW

The Alberta Poultry Show was held in Calgary in December and continued to attract many entrants in all sections, live and dressed. An increase in public attendance was noted.

BRANCH ACTIVITIES

The following table indicates the number of farm calls and meetings requested and attended by members of the Branch:

Service Calls				Meetings			
1961	1962	1963	1964	1961	1962	1963	1964
765	625	1,438	1,659	23	42	44	37

The poultry councils at Lethbridge, Red Deer and Edmonton, the Calgary Poultry Association, the Alberta Poultry Hatchery Association and the Alberta Division of the Western Canada Produce Association continued active throughout the year. The Alberta Poultry Federation functioned as a central body for all groups.

The 14th Annual Alberta Hatcherymen's Short Course, sponsored jointly by the Veterinary Services and Poultry Branches was held in Calgary.

The Hatchery Sanitation Control Testing Program continued on a voluntary basis. It received 100% co-operation and has proved a valuable adjunct to individual hatchery sanitation programs.

As demanded by the produce trade, hatchery, feed companies and producers the Poultry Branch continued to prepare information on estimated costs of production of commercial eggs, hatching eggs, chicken broilers, and turkeys.

As requested by hatcheries, processors and commercial broiler growers the Poultry Branch continued preparation and summation of grower costs and returns. In addition, a broiler supply and estimated production situation report was prepared and published monthly.

The Producer Vendor Summary was prepared again this year. An increase in numbers of layers maintained by these producers was noted. It is estimated these account for close to 50% of commercial or carton egg requirements of the province.

A survey of commercial laying cage establishments was carried out. An increase of establishments and birds maintained in cages was noted. Of the total increase in economic commercial production units established in 1964, 78% were in cages.

The Poultry Branch in co-operation with other Branches participated in several specific studies:

1/ POULTRY COST STUDY — jointly with Farm Economics Branch. A study of 15 selected commercial egg operations.

2/ COMMERCIAL FLOCK HEALTH SURVEY — jointly with Veterinary Services Branch. A study of causes and contributing factors of all mortality on five selected commercial egg farms.

3/ AVIAN ENCEPHALOMYELITIS SURVEY — jointly with Veterinary Services Branch and Connaught Laboratories Ltd., Toronto. Blood samples of 156 flocks selected throughout all areas of the province were checked. It was concluded a vaccination program for control of epidemic tremors was not warranted.

4/ PESTICIDE RESIDUE IN EGGS — A study and assessment of residue of certain pesticides in eggs from selected commercial farms from all areas of the province was carried on.

5/ WESTERN EQUINE ENCEPHALOMYELITIS SURVEY — assistance was given the Department of Health in selecting suitable premises for establishment of sentinal flocks throughout the province for assessment of sleeping sickness.

The Poultry Commissioner attended the annual meeting of the Canadian Produce Association (Western Division) and a Federal-Provincial meeting of poultry officials. He attended a meeting of the Continuing Committee on poultry breeding in Canada. He participated in a committee established to assess marketing legislation in certain provinces of Canada and two states of the United States. He and/or members of the Poultry Branch served on committees of various industry organizations and attended many meetings of industry groups.

Report of the Fur Farms Branch

1964

R. W. GILLIES, Supervisor

GENERAL

Fur farming in Alberta for the season 1963-64 again proved to be a profitable one for those employing good management policies. Market conditions were good mainly because mink farmers were able to sell their product with reasonable returns within a period of thirty days after pelting. Kit increase was above normal, mortality was low, feed supplies adequate in most areas, with the result that a record crop consisting of 181,698 mink pelts were marketed from Alberta.

HEALTH

Five cases of distemper and one case of Virus Enteritis were diagnosed in the province. Generally health conditions were good with the exception of one small area in Lac la Biche, which, no doubt, will be covered more fully in the Veterinary Laboratory Report.

FIELD DAYS AND SHOWS

Due to some distemper and in lieu of field days, two meetings were held at Lac la Biche and Calgary. The program for these days included K. G. Montgomery, Terry Ruttle, Edmonton Fur Auction, and John White, Hudson Bay Co., Montreal. The 26th Annual Live Mink Show for the first time was staged in Faust on November 10th and 11th, and proved to be one of the best produced in a number of years. Mr. Wm. Levine of Edmonton Fur Auction and John T. Caine, a prominent Edmonton mink rancher, did a very efficient job of placing the large entry. The chinchilla breeders continued to hold their Annual Field Day and Show which again was well presented and attended.

FUR BREEDER ASSOCIATIONS

These associations continue to be very active. This branch has assisted both mink and chinchilla breeders at numerous of their regular meetings.

The writer was invited to act as moderator at the 1964 B.C. Mink Breeders Short Course last February. This was an interesting and educational experience and one which I trust may be repeated some time soon since much useful information on the mink business is discussed at this Annual Short Course.

The National Meeting of the Chinchilla Breeders Association was held in Edmonton on November 7th. The province acted as host to the attending delegates.

OFFICE PROGRAM

The long established office routine was continued along with ranch visitation and inspection.

CURRENT

Some dark clouds appear on the mink market at present. Dark or standard mink, which have been a good article the past few years, have taken a sharp drop in prices. Ranchers raising this type are most unhappy. While standards appear to be facing a decrease in price of 25 to 30%, mutations remain steady and should return as much as a year ago.

Chinchilla pelts of quality are selling readily but commercial grades are meeting price resistance and are not selling well at the present time.

FUR FARM STATISTICS UP TO AUGUST 31, 1964

Number of Animals Declared on Fur Farms in Alberta, 1963-64

Kind of Animals	Total No. of Animals	Av. Value Per Animal Sept., 1963	Total Valuation
Mink Standards	79,459	$22.00	$1,748,098.00
Mink Mutations	163,942	16.00	2,623,072.00
Chinchilla	6,634	15.00	99,510.00
Fox	53	12.00	636.00
Nutria	128	5.00	640.00
Miscellaneous	58	15.00	870.00
	250,374		$3,912,126.00

Livestock Value on a current pelt basis

Number of Animals Pelted on Fur Farms in Alberta, 1963-64

Kind of Animals	Total No. of Animals	Av. Value Per Animal Fall, Sept., 1963	Total Valuation
Mink Standards	55,511	$22.00	$1,221,242.00
Mink Mutations	126,187	16.00	2,018,992.00
Chinchilla	1,460	15.00	21,900.00
Fox	41	12.00	492.00
Fox (Stale from storage)	59	10.00	590.00
Nutria	3	5.00	15.00
	183,261		$3,263,231.00

Number of Live Animals Exported from Alberta, 1963-64

Kind of Animals	Total No. of Animals	Av. Value Per Animal	Total Valuation
Mink Standards	621	$ 75.00	$46,575.00
Mink Mutations	418	75.00	31,350.00
Chinchilla	47	100.00	4,700.00
Miscellaneous	5	50.00	250.00
	1,091		$82,875.00

Number of Animals Retained for Breeding Stock in Alberta

Kind of Animals	Total Number of Animals Retained 1962-63	1963-64
Mink Standards	11,744	23,327
Mink Mutations	53,354	37,337
Chinchilla	2,930	5,127
Fox	16	12
Nutria	360	125
Miscellaneous	12	53
	68,416	65,981

Fur Farm Licenses

	1962-63	1963-64
Mink	263	252
Mink, Fox & Miscellaneous	2	3
Chinchilla	64	102
Nutria	7	4
Chinchilla & Nutria	2	1
Miscellaneous	3	2
	341	364

Mink Pelt Production, 1959 to 1964

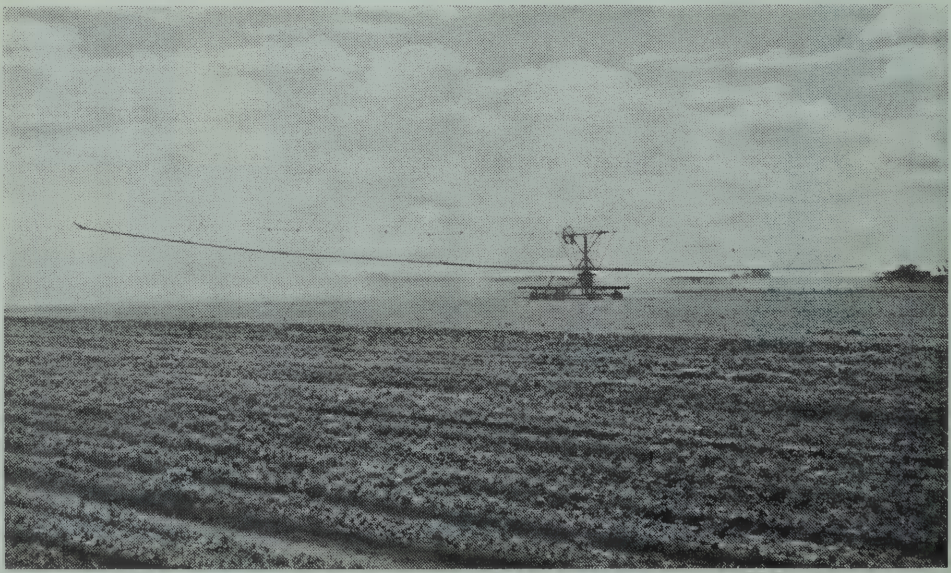
Year	Total Pelts	Value
1963-64	181,698	$3,240,234.00
1962-63	156,189	2,577,110.00
1961-62	151,416	2,536,990.00
1960-61	146,590	2,233,895.00
1959-60	135,343	2,684,500.00

Report of the Water Resources Branch

F. L. GRINDLEY, B.A., B.Sc., P.Eng., Director of Water Resources
R. E. BAILEY, B.Sc., P.Eng., Chief Engineer

There is today an apparent national movement toward the evaluation and development of the natural resources of the country. Such programs as the Agricultural Rehabilitation and Development Act, the International Hydrologic Decade, the proposed national committee on pollution, proposed committees on surface water evaluation, proposed studies on the Saskatchewan-Nelson Basin, as well as a provincial program for evaluating and better utilizing land for the production of agricultural and forestry products, intensification of groundwater mapping, rural development studies, and so on, are all indicative of the new nation-wide attitude towards better management of natural resources.

Water Resources were directly or indirectly associated with a number of these programs, consequently this Branch found it necessary to expand its field of endeavours in order to properly fulfill its obligation in the ever broadening aspects of water administration. New programs were initiated during the year and others were formulated to be put into effect in 1965. One such undertaking, presently well underway, consists of the mutual cooperation between this Branch and the Department of Lands and Forests in conducting land and watershed evaluation studies in areas to be opened for new settlement. From the Water Resources point of view this program affords an excellent opportunity to provide for water conservation measures in an area before settlement takes place, thereby minimizing the probability of future flooding and drainage problems which are costly to remedy. In addition, provision can be made to retain a large percentage of the water resources of the area for use by future inhabitants rather than permit this water to be lost to beneficial application, which so often occurs during the course of rural development.



As a result of these studies it became apparent that more basic information was necessary to conduct proper evaluations. It was therefore proposed that several typical watershed areas be selected which could be instrumented well in advance of development and the change in hydrologic characteristics observed and recorded during the course of development. This program was compiled and will be submitted for support under ARDA and the International Hydrologic Decade.

Other programs were formulated to provide for a co-ordinated and combined effort between the Alberta Research Council and the Water Resources Office for intensification of studies to determine the regime characteristics of rivers. Some work of this nature was done in the past by the Department of Highways through a joint arrangement with the Alberta Research Council, and also by the Water Resources Branch. Since most of the information which has been obtained independently is of mutual interest, it was considered desirable to join forces so that this endevour could be continued under a combined effort.

In addition to this expansion into new fields of activity, demands on already existing services continue to grow. Early spring flooding in southern Alberta resulted in many requests to restore river channels to their former location and to take measures to prevent future erosion problems. Later in the year continuous rains in the Peace River country brought forth many pleas for assistance in constructing drainage and flood control works. Seven projects designed to alleviate flooding problems were completed during the year, while five others are still in the process of construction. By September of the year, $122,806.00 was expended on projects of this nature that were undertaken under the municipal financial assistance program. This represents a total capital value of approximately $245,000.00 worth of works. In addition surveys, investigation and design were conducted to various stages of completion on 40 other projects.

Work on the conservation and development of water resources was intensified during 1964. A principle area of concentration at the present extends from the headwaters of the Highwood River to the Chain of Lakes project on Willow Creek. Construction on this latter scheme was commenced in the fall of the year by the P.F.R.A. and was done under the provisions of the 1964 Federal-Provincial Agreement. This Agreement provided for the construction of projects by the Federal Government which, upon completion, are turned over to the province for future administration.

Work on the Highwood River consisted of efforts to locate a suitable damsite which would afford a measure of control on the river, thereby relieving flooding conditions in the vicinity of the Town of High River and make available stored water for use during periods of low flow.

Other possibilities for conservation and development were given preliminary study throughout the province.

As in the past, the Department was again approached to assist in supplying domestic water to a number of towns whose re-serves had been depleted because of inadequate moisture conditions. In August approximately 18 million gallons were pumped to the Town of Tofield, making use of 1300 feet of aluminum pipe and 11 miles of existing gas pipeline, the latter being made available for the operation by Northwestern Utilities Limited. An additional eight million gallons were supplied through the same system to the Town of Ryley, utilizing some 24 miles of pipeline. This operation was completed during the month of August.

The newly constructed reservoir at the Town of Lamont was not completed in time to be filled from spring runoff, and consequently about 15 million gallons were pumped through seven miles of pipe from Astotin Lake in Elk Island Park. The use of this source of supply was made possible through the appreciated co-operation of the Federal Parks Department.

Seven million gallons were required for the Town of Thorsby which was supplied by pumping through 600 feet of aluminum pipe.

In November, a half mile of pipe was used to supply the Smithread School in the High Prairie School Division with approximately 500,000 gallons of water.

Pumping operations were also undertaken at Holden during November through three and one-half miles, and later seven and one-half miles of pipeline. Extremely cold weather made this operation very difficult and no appreciable amount of water was delivered.

The newly constructed reservoir at the Town of Lamont was not completed in time to be filled from spring runoff, and consequently about 15 million gallons were pumped through seven miles of pipe from Astotin Lake in Elk Island Park. The use of this source of supply was made possible through the appreciated co-operation of the Federal Parks Department.

Irrigation in the province received considerable attention. A physical appraisal, and an economic study, were launched under an ARDA program on all the irrigation projects. The study was carried out jointly by the Economics Division of the Federal Department of Agriculture, the P.F.R.A., and the Economics Division of the Department of Agriculture at the University of Alberta. The object of the study was to provide data and information which will assist in formulating a provincial policy which will guide the future development of irrigation schemes, and ensure that any consideration given to the expenditure of public funds for irrigation will be made on an equitable basis between one project and another. To further the objectives of this program, the Minister appointed an Irrigation Policy Committee from among Civil Service employees to evaluate the results of the economic studies, and to obtain any additional information that may be required in formulating a policy recommendation.

Until this work has been completed, no new irrigation development schemes nor overall drainage programs, other than those presently in existence or those of an expedient nature, will be initiated.

To accommodate those situations of an expedient nature, a policy was established such that, when drainage problems exist that are mutual to an irrigation district and a municipal road building program, the necessary remedial measures may be undertaken through joint participation between the municipality, the irrigation district and Water Resources.

Saskatchewan-Nelson Basin Study

In the 1963 Report it was stated that a Ministerial Conference had been held in Regina on December 20, 1963 to consider implementation of the Saskatchewan-Nelson Basin study. It was further reported that a committee of Ministers was appointed at that meeting, under the chairmanship of the Honourable Harry E. Strom, Minister of Agriculture for Alberta.

One of Mr. Strom's duties was the establishment of a Technical Advisory Committee whose function it would be to draft terms of reference, and a proposed study outline for the Saskatchewan-Nelson Basin. Each province appointed a representative to this committee and membership consisted of the following:

MANITOBA	Mr. J. A. Griffiths, Director Water Control and Conservation Branch Department of Agriculture and Conservation
SASKATCHEWAN	Mr. J. W. MacNeill, Executive Director Saskatchewan Water Resources Commission Department of Agriculture.
	Mr. E. A. Olafson, Director Conservation and Development Branch Department of Agriculture.
ALBERTA	Mr. R. E. Bailey, Chief Engineer Water Resources Branch Department of Agriculture.
	Mr. A. G. Underhill, Engineer Water Resources Branch Department of Agriculture.
CANADA	Mr. M. J. Fitzgerald, Director Prairie Farm Rehabilitation Administration Department of Agriculture.
	Mr. R. H. Clark, Chief Hydraulic Engineer Water Resources Branch Department of Northern Affairs and National Resources.

The first meeting of the committee was held in Edmonton on February 21, 1964. In all, six meetings were called, the last being held in Saskatoon on November 11. The location of the meetings was rotated between provinces and one of the representatives, from the province in which the meeting was conducted, acted as chairman. Additional advisors were periodically in attendance at the invitation of the committee.

The task undertaken was not an easy one, however, through forthright and open discussion, terms of reference were hammered out which proposed the method by which the study should be undertaken and the administrative arrangements considered best suited to control and direct the course of the study.

In December copies of the final report were submitted to the Honourable Mr. Strom for circulation among members of the Ministers Committee and those attending the original conference in Regina in 1963. Further action will await the decision and direction of the Ministers Committee once there has been an opportunity to study the report and evaluate its contents.

Interprovincial Water Administration

At the March fourth meeting of the Prairie Provinces Water Board held in Regina, Alberta requested that the Board reconsider Alberta's 1949 allocations to projects in the light of water usage for irrigation during the 1961 drought and also in the light of the more recent scientific approach to evapo-transpiration and consumptive use in irrigation. In support of this request a document was prepared entitled "Submission to the Prairie Provinces Water Board for Re-consideration of Alberta's Allocations for its Irrigation Projects". This submission is based on the Underhill Report on "Irrigation Water Use Study".

Under Minute 27-10 the revised allocations for irrigation projects in Alberta was 'approved in principle'.

The controversial subject of whether the Prairie Provinces Water Board would dominate the proposed Hydrometric Committee or whether the Department of Northern Affairs would be the prime movers in such an organization was raised at this meeting. It is difficult for Alberta to understand the viewpoint of Saskatchewan and Manitoba on this question as Alberta's co-operative program with the Department of Northern Affairs in hydrometric work has been working smoothly. Alberta feels that the committee should be a Northern Affairs committee that will co-operate with the Board. Co-operation can only take place in an atmosphere of goodwill.

At the June 16 meeting in Winnipeg considerable discussion took place regarding Alberta's request for revised allocations. No final decisions were arrived at and it was agreed that the topic would be raised at the next meeting of the Board. The question of whether apportionment of the waters of the Saskatchewan River would be a better administrative method than allocations to projects was discussed at length. A motion to adopt Alberta's revised allocations (see Schedule A) was passed but Saskatchewan and Manitoba refrained from voting.

There was very little progress of a constructive nature made at the August 20 meeting in Edmonton. On November 10 the

Board met in Saskatoon. Alberta's request for a reservation of water for the Red Deer River Project (William Pearce) was renewed for another two year period.

A resolution was proposed by the Board to recognize Alberta's request for revised irrigation water allocations, having in mind that water apportionment would be the eventual answer to the problem of 'The Western Provinces Water Division'. This resolution is being studied carefully by the Board and may be legalized by appropriate orders-in-council.

ADMINISTRATIVE ENGINEERING

Water Rights

A total of 285 applications for water rights were received and recorded in 1964. Table I shows the distribution of these applications with respect to drainage basin and nature of water use.

TABLE I

PURPOSE OF APPLICATION

Drainage Basin	Domestic	Municipal	Irrigation	Industrial	Other	Total
Athabasca River	6	......	......	4	2	12
Bow River	21	......	13	2	......	36
Churchill River	2	......	......	......	......	2
Endon Slough	1	......	......	......	......	1
Forty Mile Lake	2	......	......	......	......	2
Great Sandhills	4	......	......	......	......	4
Manito Lake	4	......	1	......	5	10
Many Island Lake	2	......	1	......	......	3
McGregor Lake	2	......	2	......	......	4
Milk River	4	......	3	......	......	7
North Saskatchewan River	29	......	12	2	2	45
Oldman River	33	......	16	2	1	52
Pakowki Lake	9	......	2	......	......	11
Peace River	2	......	......	2	......	4
Red Deer River	46	......	9	3	2	60
Seven Persons Creek	7	......	3	......	......	10
South Saskatchewan River	10	1	4	......	......	15
Sullivan Lake	6	......	1	......	......	7
TOTAL	190	1	67	15	12	285

Interim licenses issued during the year for all types of water use totalled 301.

In December a study was made of licensed private, domestic and irrigation projects and community reservoirs. The following is a summary showing the number and various kinds of projects that are registered on the books of the Water Resources Office.

Private domestic projects:	
Under 100 acre feet of capacity	4,040
Over 100 acre feet of capacity	8
Private irrigation projects	1,600
Community Reservoirs:	
Under 100 acre feet of capacity	180
100 acre feet to 1,000 acre feet	201
1,000 acre feet to 2,000 acre feet	35
2,000 acre feet to 10,000 acre feet	42
10,000 acre feet to 25,000 acre feet	10
Over 25,000 acre feet	7

A search was made of water rights records and the files of all projects, non-existent as of 1960, were destroyed together with files of projects for which applications only had been received and on which no further work had been undertaken. The recommendations and notice of cancellation were retained on micro-film for permanency of record.

Other documents processed during the year were as follows:

Right-of-Way

St. Mary and Milk Rivers Development	42
Bow River Development	21
Lethbridge Northern Irrigation District	2
Others	6

The program of transferring right-of-way plans to micro-film in the interest of conservation of space and the preservation of these records continued throughout the year. The original linen tracings of right-of-way on the canals of the St. Mary and Milk Rivers Development system were transferred to the Water Resources Office in Lethbridge.

Water Agreements

Bow River Development	61
St. Mary and Milk Rivers Development	20
Eastern Irrigation District	64

Inspection Services and Special Investigations

During the year 294 complaints were investigated by the Administrative Engineering Division. These complaints originated primarily from farmers, counties, and municipal districts. In order to obtain the necessary information concerning these problems, approximately 192 miles of survey work was undertaken.

An unusually low spring runoff combined with a dry early summer in the Edmonton area reduced the number of complaints received during this time. Intensive later summer and early fall rains, however, aggrevated many areas subject to flooding, resulting in a deluge of problems.

Aerial photographic surveys have been started on two longstanding flooding problems, namely, the Vermilion River and Pine Creek (Athabasca area).

Financial Assistance Policy

To date, grants totalling $122,806.19 were issued to municipal districts, countries, improvement districts and drainage districts.

The following table shows the yearly expenditures on this program since its inception in 1954:

Fiscal Year	Total Paid	
1954-55	$ 2,449.42	
1955-56	10,566.19	
1956-57	46,833.51	
1957-58	54,616.48	
1958-59	61,131.28	
1959-60	31,130.95	
1960-61	29,353.33	
1961-62	21,554.24	
1962-63	61,056.04	
1963-64	107,243.07	
1964-65	122,806.19	(to Sept., 1964)
TOTAL	$548,740.70	

The majority of the projects were again in northern Alberta, in areas where flood control was particularly vital to the economy of the region. Numerous worthy projects had to be postponed because of the inability of the municipal body concerned to raise their portion of the cost of the project. This was particularly true where the municipal financing was from an improvement district trust account.

Drainage Districts

The total number of drainage districts remained unchanged. There were nine drainage districts in the province and collectively they constituted a total area of 189,200 acres of which 75,647 acres received direct benefit. Some financial assistance for maintenance programs was provided to districts during the year.

The preliminary organization of another drainage district should be recorded at this time. Due to a re-occurring flooding problem within the Paddle River flood plain, the landowners have petitioned the Minister for the formation of a proposed district with the petitioned area representing approximately 40,000 acres. This proposal was under study and was contingent on the outcome of investigations into storage possibilities being conducted by the P.F.R.A. at the request of the province.

HYDROLOGY

General

One of the significant events of the year, hydrologically speaking, was found in the unusual climatic conditions which prevailed in the province. The abundance or shortage of precipitation, and the distribution of its occurrence materially affected the program of the Water Resources Branch, and although weather was often the topic of idle conversation, it had a very real significance when its influence on the administration of water resources is considered.

On June seventh and eighth a storm occurred over much of the country from Waterton Park south to Great Falls, Montana, which dumped more than ten inches of rain onto an abnormally thick mountain snow pack, triggering floods on Lee Creek, the St. Mary, Belly, Waterton and Castle Rivers in the order of 1 in 100 year probability or greater. On the Waterton and Belly Rivers the peak discharges were about four times as great as any flood that has occurred since 1908. The effects of this on the townsites of Waterton Park and other areas in southern Alberta and Montana were given considerable coverage in the newspapers and is familiar to everyone.

Following this event, conditions returned to more or less normal in southern Alberta to the extent that some areas experienced severe drought in the early part of the summer and rain came too late to save many of the dry land crops.

The extremes which prevailed are best illustrated in Table II which shows that at Waterton Park over 23 inches of precipitation fell during the months of April, May and June with a total precipitation of nearly 50 inches from October, 1963 to September 1964, which was some 21 inches above normal. The Lethbridge, Raymond, Cardston areas actually were blessed with a little above normal precipitation during the year, but the Brooks, Medicine Hat, Hanna, Coronation areas received less than normal during the month of July with the total for the year being nearly one-half below average.

Some portions of the Special Areas experienced an extremely dry season. This was particularly true in the southern portion where water is normally scarce, but early in 1964 some real concern was expressed over the lack of reserve stockwater supplies and the Department undertook some investigations to see what temporary remedy might be considered. Fortunately, precipitation later in the year relieved the situation and emergency measures were avoided.

In contrast, the Peace River area began the year under relatively dry conditions. This was shortly to change, however, for on June 27 and 28, and again on July 30 to August 3 heavy rains occurred causing flood damage in various parts of the country. The interval between and that following, until almost the end of September, was marked by nearly continuous rains. From 18 to 24 inches of water poured down during the period from June to September, two or more times the average amount for this period. Table II illustrates these conditions and shows for example that the Beaverlodge-Grande Prairie area received over 10 inches of rainfall above the long term normal for the period October to September. These conditions severely hampered construction operations and presented difficulty in fulfilling the planned program for the year. In addition, many requests were received for the investigation of flooding conditions and initiation of remedial measures.

TABLE II
PRECIPITATION IN INCHES
1964

				Difference From Normal		
Stations	April, May, June	April, May, June, July	October/63-September/64	April, May, June	April, May, June, July	October to September
Beaverlodge, Grande Prairie	10.0	15.6	28.2	+5.6	+8.7	+10.4
Fairview, Peace River	7.1	12.1	20.3	+2.9	+4.3	+ 4.7
Whitecourt, Edson	8.0	13.6	24.9	—1.8	+3.7	+ 4.6
Athabasca, Lac La Biche, Elk Point	3.8	7.8	17.0	—1.2	0.0	+ 0.4
Edmonton, Calmar, Wetaskiwin	4.6	7.3	16.4	—1.4	—1.5	— 1.3
Camrose, Hughenden, Vegreville, Vermilion, Lloydminster	4.4	6.7	15.7	—0.4	—0.7	+ 0.3
Lacombe, Penhold	6.5	8.4	17.0	+0.3	—0.8	— 0.3
Calgary, High River, Claresholm, Ft. MacLeod	7.5	8.8	14.2	+0.4	—0.4	— 3.9
Lethbridge, Raymond, Cardston	10.5	11.5	18.7	+4.1	+3.4	+ 2.0
Waterton Park	23.5	24.7	49.5	+14.2	+13.6	+21.3
Brooks, Medicine Hat, Vauxhall, Hanna, Coronation, Drumheller, Wastina	4.8	6.4	12.8	+0.2	—0.2	— 0.4

The long range program for development of hydrological knowledge, summarized in the 1963 Annual Report, continued through 1964. As usual, the continuous occurrence of problems involving flood control and water supply occupied the attention of the Division.

In addition, a great amount of time and effort was spent in the following categories, which received strong emphasis this year:

Grounwater

Early in 1964 an investigation was conducted in West Coleman to determine the cause and remedy for an abnormally high ground water table. Water had flooded many basements, made natural gas installation impossible and rendered maintenance of various utilities very difficult. Results of the investigation, which involved extensive drilling and well testing, showed that the townsite is unfortunately located in a discharge area for groundwater from three distinct sources: the Crowsnest River, McGillivray coal mine (now abandoned) and glacial gravels on the mountains just north of town.

A dam on the Crowsnest River was removed last fall to lower the river stage and alleviate ponding from that source in West Coleman during the spring flood. The feasibility and costs of a drainage system for the area were under study.

A small experimental plot was established in the Westlock area for the purposes of correlating theoretical and actual groundwater characteristics under a given set of circumstances. This project was carried out by the Department and received the close collaboration and advice of the Groundwater Division of the Research Council. The results of the study will be useful in attempting to make predictions on the significance and behaviour of groundwater as related to drainage, flood control and conservation projects in general.

Personnel from the Water Resources Branch attended a groundwater course and field trip sponsored by the Alberta Research Council which aided in the acquisition of knowledge about the occurrence and behaviour of groundwater in the province.

Lake Levels

The Hydrology Division was called upon, on various occasions during the year, to investigate the hydrologic aspects of water supply to several of our Alberta lakes. Significant among these was the controversial problem which arose over an applicant from an oil company to withdraw water from Miquelon Lake for oil field recharge purposes. Like many of the lakes in the area, water levels have declined over the recent past, and since Miquelon Lake is a popular recreation area, there was concern on the part of the general public at any suggestion of further depletions. The area is also a migratory bird sanctuary. On the other hand, the further utilization of the oil field in question was dependent on the acquisition of an adequate water supply for recharge purposes. As a result of the studies conducted, an arrangement was proposed which was in the interest of the general public, the provincial government and the oil company.

Gull Lake has been under intensive study for some time because of the continual drop in water level. These studies of lake level and meteorological records in the area showed that the decline in lake level was a direct result of decreasing precipitation and/or increased evaporation so that, until nature's cycle is reversed, the lake can be expected to continue to recede unless some alternative means of augmenting water supplies is discovered. To date, no entirely satisfactory solution, that is at the same time within the boundaries of economic reason, has been proposed.

Watershed Management Studies

The concept and merits of watershed basin management as a means of efficiently developing our land and water resources received growing interest and recognition. During the year the Department collaberated with the Department of Lands and Forests in the planning of two townships of land shortly to be opened for new settlement. A hydrologic analysis of the area was made to determine what conservation measures might be best suited and what drainage and flood control works might be anticipated in future as development takes place. Reference to this program is also made under the Conservation and Development section of this report.

This work prompted further consideration of an applied research project, long contemplated by Water Resources, to establish typical watershed basins in which the change in hydrologic characteristics, as brought about by the normal development associated with new settlement, might be observed over an extended period of time.

International Hydrologic Decade

World wide preparation for the beginning of the International Hydrologic Decade in 1965 produced a flurry of activity. This intensive attack on the lack of hydrological knowledge has been preceded by proposals, meetings, institutes, etc., in which this division has been involved along with other provincial and inter-provincial bodies. The Supervisor of the Hydrology Division was appointed as the Water Resources representative to the Provincial Hydrologic Decade Committee. This Committee was chaired by the Water Resources District Engineer in Calgary. Meetings were held for the purpose of submitting proposals to the National Committee for acceptance under the Decade program. Alberta prepared a proposal for the establishment of watershed basin research as mentioned above and is currently pursuing the development of this proposal.

River Regime Studies

Negotiations and planning were underway for the establishment of a joint investigational program involving the Research Council of Alberta, the Department of Highways, and Water

Resources for the purpose of continuing investigations into the characteristics of river channels which were of mutual interest to all three parties. A proposal was prepared to be submitted for consideration to conduct this work under the A.R.D.A. program. Various aspects of this type of study was carried out in the past by different agencies, and in the interest of avoiding duplication and consolidating effort and knowledge, it was considered that a joint program would be very beneficial and more effective.

The information derived from the program is necessary in relation to other activities of the Department, particularly those associated with the conservation and development of the province's water resources and the effects of artificially imposed streamflow regulation resulting from the construction of dams and other water control works.

GROUND WATER

General

Activity in the field of groundwater administration continued to increase during the past year. To accommodate the demand, and supported by a Groundwater Advisory Committee recommendation, one additional member was placed on the Groundwater Administrative staff.

Under an agreement conceived in 1962 between the Federal, Provincial and Municipal governments to provide water wells for drought-stricken areas of the province, one water well was completed for the Viewfield Community in the Special Areas in 1964. The costs involved in providing the water supply were divided equally between the Federal Government, the Provincial Government and the Special Areas Board with the community assuming responsibility for maintenance.

Education in modern water well construction techniques of both water well drillers and water well owners is considered a prime factor in upgrading the quality of wells and increasing co-operation in submitting water well drilling reports. With this in mind, the Groundwater Office participated in presenting to water well owners and drillers four short courses arranged by District Agriculturists in Morinville, Stettler, St. Paul and Vegreville.

Inspections

Approximately 175 field trips were made for the purpose of investigating complaints, checking water well drillers for permits and reports, supervising water well drilling, measuring lake levels, conducting lake bed surveys and inspecting proposed lake shore developments submitted by the Provincial Planning Board.

Water Well Drillers

Due to a more concentrated effort of personal contacts and reminders, the number of registered water well drillers and the number of reports submitted showed a substantial increase as indicated by the following comparison:

Year	Registered Drillers	No. of Reports
1960	189	1,005
1961	201	1,221
1962	211	1,484
1963	193	1,000
1964	250	2,344

Lake Bed Surveys

The program of taking sonic soundings of lakes in the province was continued in 1964 for the purpose of establishing depths and storage capacities. A total of 19 lakes were sounded which brings the total to 60 lakes and 10 reservoirs completed.

The information is useful in assessing our natural storage and also for recreational and industrial groups interested in utilizing this resource. Following is a list of the lakes and reservoirs which have been surveyed:

Antler
Amisk
Baptiste
Bear
Battle
Buck
Bearspaw Reservoir
Barrier Reservoir
Beaver
Cardinal
Carson
Clairmont
Cross
Cooking
Cottage
Cold
Charlotte
Chip
Chestermere
Crowsnest
Eagle
Fawcett
Fort
Floatingstone
Gull
Goodfish
Gosling
Glenmore Reservoir
Ghost Reservoir
Hartell Reservoir
Hastings
Isle
Island
Jessie
Jackfish
Joseph
Kananaskis-upper, lower
Kehiwin
Keho Reservoir
Lac La Nonne
Lac Ste. Anne
Lac La Biche
Long
Lawrence
Long Island
Little Beaverhill (Ferintosh)
Moose
Miquelon
Marie
Moore
Medicine
Mitsue
Muriel
Minnewanka
McGregor
McDonald and Cochrane
Oliver
Pigeon
Red Deer
Snipe
Sturgeon
Sylvan
Skelton
St. Mary Reservoir
Touchwood
Wabamun
Wakamao
Whitefish

Lake Levels

Most lakes in central Alberta showed a slight decline or remained relatively unchanged during the year due to a near normal amount of precipitation. The Peace River Block experienced above normal rainfall during the summer and was reflected in a continuing rise of Lesser Slave Lake.

The following list shows a comparison of mean levels for some of the major lakes during the past five years:

	1960	1961	1962	1963	1964
Gull	91.29	90.29	89.67	89.33	89.16
Sylvan	78.05	77.58	76.80	76.80	76.45
Cooking	96.58	96.29	96.20	96.68	95.91
Buffalo	85.60	84.57	83.50	83.60	82.45
Wabamun	71.08	70.53	70.72	70.87	70.57
Pigeon	100.00	99.51	99.28	99.26	99.11
Lac Ste. Anne	97.57	97.14	97.35	98.20	97.37
Lac La Biche	100.55	97.82	98.74	97.66	95.48
Lesser Slave	90.17	90.64	92.48	93.59	94.77

CONSERVATION AND DEVELOPMENT

The ever growing appreciation for the need and importance of conservation and development of the provinces water resources prompted acceleration of studies in this field. Projects ranging in magnitude from small storage reservoirs providing benefit within the limits of the local area to those more extensive in nature from which the benefits would materially affect a large portion of the province were investigated during the year. Associated with this work, 225 line miles of terrain were subjected to new aerial photography at a scale of 2640′ per inch, and 1008 line miles were photographed at 400′ to the inch. The establishment of ground control and the preparation of topographic plans on this area is presently in various stages of progress.

Stimson Creek Project was a multi-purpose proposal involving a watershed management program extending from the headwaters of the Highwood River to the recently undertaken Chain-of-Lakes Project on Willow Creek. It afforded benefits of flood control for the Town of High River, stream flow regulation, recreation, and additional water for the irrigation districts of the Lethbridge Northern and the Eastern Irrigation Districts, as well as multi-purpose benefits to the interlying area. Those aspects of the project which involve the development of Mosquito Creek were jointly studied under a co-operative program with the P.F.R.A. By completion date, eight damsites and the necessary diversion canals will have been completely studied.

It has been proposed that a socio-economic study be undertaken in 1965 for the purpose of analyzing the economic implications associated with such a project in the area which would derive benefits from it.

Other projects which have been investigated or on which investigations were underway are:

1. Little Beaver Lake
2. Swan Lake
3. Red Deer and Ferintosh Lakes
4. Shunda Creek
5. Ram River
6. Klein Lake

Construction started on Klein Lake and the project will be completed early in 1965. This scheme was a joint undertaking with the Fish and Wildlife Branch of the Department of Lands and Forests.

The Swan Lake and Ram River projects were integrated with the proposed development on the Clearwater River. One of the objectives of the Clearwater project was to augment water supplies for the William Pearce Project.

The Red Deer and Ferintosh Lakes proposal was a joint undertaking between Water Resources and P.F.R.A. which would provide for the better utilization of existing water supplies in the area and downstream along Meeting Creek. Ducks Unlimited also indicated interest in participating in the scheme. There was considerable interest shown by the residents of the area, but at the present the Department is awaiting a formal request from the people before pursuing further investigation.

The Little Beaver Lake proposal was a watershed management project jointly prepared by Water Resources and the Fish and Wildlife Branch for submission to A.R.D.A.

The Shunda Creek scheme proposed a small local water conservation undertaking similar to the Klein Lake project, located in Township 41, Range 15, West 5th Meridian.

Joint participation between Water Resources and the Department of Lands and Forests was undertaken under the A.R.D.A. Land Evaluation program. This program followed a basic pattern of watershed basin management for the development of new areas for settlement. Two townships of land near Valleyview were investigated and recommendations submitted in 1964, with several other areas being contemplated for 1965. It is hoped that this joint co-operative effort will accomplish much toward prevention of flooding and drainage problems in newly developed areas, as well as provide for the conservation of local water resources for use by local inhabitants.

Further comment on this work has been made under the section of this report pertaining to the Hydrology Division.

William Pearce Project

Shortage of staff prevented the progress on the William Pearce project that had been anticipated. However, permeability tests are virtually complete for the Long Line Canal, and during the year the Sullivan Lake area was re-photographed from the air for purposes of determining and studying interim storage locations. Twenty-eight overlays were completed in preparation for further studies in the distribution area of the project located in east-central Alberta. The nature and purpose of these overlays was described in detail in the 1963 Annual Report.

Arrangements were formulated for the establishment of ground control for purposes of aerial mapping on the proposed diversion of the Ram River into the Clearwater River. Plans were made to undertake foundation investigational drilling on the Swan Lake damsite. It is proposed that final foundation analysis be undertaken on the Clearwater damsites in 1965, as well as a final drilling and design on the proposed Clearwater River to Red Deer River diversion.

The recently proposed thermo power plant at Ardley, and the consequent possibility of readily available cheap power, could materially change the general complex of the William Pearce Project. Preliminary consideration in this regard suggests that the two proposals could be of mutual advantage to each other in many respects, however, this is very much in the speculative stage at the present time.

A social and economic study of the William Pearce Project under the A.R.D.A. program is being proposed for 1965.

Lake Level Stabilization Program

The Buck Lake stabilization project marked a renewal of provincial government participation in lake stabilization.

In the past, several projects were undertaken in co-operation with Ducks Unlimited with the primary objective of raising the level of northern lakes, thus encouraging wild fowl propagation.

Over the past few years, with the increase in recreational activity on our lakes and subsequent huge investments in lake shore development, the need for lake stabilization increased.

Preliminary steps in a project of this type are very important. Since the establishment of any arbitrary lake level will normally meet with some opposition, it is necessary to obtain a majority decision on the matter from the people concerned. In the case of Buck Lake a survey questionnaire was circulated, followed by a general meeting at which time the permanent lake level was agreed upon.

The actual physical requirements of this type of scheme involved the installation of a long crested concrete structure at the outlet of the lake. Improvement of the natural channel may also be necessary. This combination allows for a large increase in flow for a small increase in lake elevation.

The general aims and benefits of this program are as follows:

1. Produce a nearly permanent shoreline through the reduction in lake level fluctuation.
2. Provide flood control for lake shore installation.
3. Assist in water conservation development.
4. Stimulate tourism.
5. Improve fish and wildlife habitat.

DRAINAGE AND FLOOD CONTROL

The effects of climatic conditions on a work program was particularly evident in 1964 when early floods in the southern portion of the province resulted in numerous requests being made for river channel improvement work where flood waters had caused the rivers to change their course, washing out roads, eroding away farmland, and endangering buildings. Although northern Alberta experienced a normal to dry spring, later rains caused precipitation considerably above average which not only hindered the construction of projects already underway, but also resulted in numerous requests for investigations into new problems.

The number of projects and volume of work in this regard is far too large to report in detail and consequently it is considered that the following summary will be sufficient, together with a few comments.

The following list indicates the projects under construction during the past season with an estimate of the percentage of completion:

	Percent Complete
1. Whitemud River	70
2. East Prairie River	85
3. Muskeg Creek Spillway Structure	100
4. Ferguson Lake Project	100
5. Hawk Hills Drainage	60
6. Hotchkiss Drainage	100
7. Durda Spillway	100
8. Highwood River Protection Works	100
9. Sinkevich Complaint	100
10. Fox Creek Improvement	100
11. Hines Creek Project	60
12. Willow Creek Protection Works	50

The extreme amount of water that was periodically carried in the Whitemud River, and the resulting extensive flooding conditions, added further impetus to the continuation of the remedial measures which were undertaken. Because of the nature of the terrain, the problem was not easily solved within the boundaries of reasonable economics. It is hoped, however, that the work being done will offer a significant measure of relief, but it is known that it will in no way guarantee permanent protection against future flooding. Additional comments on this project can be found in the 1962 Annual Report.

Information about the East-West Prairie Rivers project is contained in previous annual reports. As far as 1964 is concerned, extremely wet conditions prevented further work until late in the winter. Flows on the East Prairie River reached proportions which were equivalent to a flood with a frequency of 1 in 5 years, and these high discharges continued for an extended period of time. The canal on this project was designed such that flood waters would enlarge it as required and the eroded material would be utilized downstream for land reclamation purposes. It was planned, however, that this would take place over a series of several years rather than all in one year. In addition, the works in the downstream reaches are not completed, and consequently some land damage due to flooding and silting was experienced. On the other hand, works so far constructed afforded a considerable amount of protection to agricultural land which otherwise would have been seriously flooded.

The Muskeg Creek spillway structure was a project undertaken in 1963 and completed in 1964. It consisted of the design and supervision of construction for the spillway on a community dam in the County of Wetaskiwin.

Details of the Ferguson Lake drainage project can be found in the 1962 Annual Report. Construction on this project was completed in 1964. The same applies to the Hotchkiss drainage project.

The Highwood River protection works consisted of reinforcing dykes constructed for the purpose of protecting the Town of High River from flooding of the Highwood River. The floods in the spring of 1963 caused damage to these dykes which were repaired during the winter of 1963-64.

The following projects were carried out under the Municipal Financial Assistance Program for purposes of providing flood control and drainage works in various areas of the province.

Fox Creek Improvements
Hines Creek Project
Hawk Hill Drainage
Durda Spillway
Sinkevich Complaint

The Willow Creek protection works was an experimental project to determine the effectiveness of steel tetrahedrons and cable for the prevention of erosion along river banks. This project will be completed and in operation in time for the spring runoff conditions in 1965.

On the Pembina River an additional cutoff in the Manola area was completed this year. This cutoff was significant in that it serves a dual purpose, one for flood control and the other as immediate protection to local improvements. In the latter respect the County of Barrhead extended a financial contribution in acquiring the necessary right-of-way.

The Bear Lake and Bolloque Lake projects deserve special mention in that this Department, together with the Municipal District of Westlock and Ducks Unlimited joined forces to combat two flood control problems through a conservation program. Flooding of agricultural lands adjacent to Bear Creek and Dapp Creek has been a recurring problem and subsequent engineering studies augmented with consultations between this Department, the Municipal District of Westlock and Ducks Unlimited lead to the formulation of the two projects under a joint venture arrangement. On flood control or drainage problems, the basic concept followed by this office is that while drainage in certain areas is a necessity to maintain the economic balance of a community, every effort must be exerted to retain and conserve our water areas wherever possible. In these instances, all the necessary circumstances were favorable to control the flood waters by means of retention reservoirs. The capacity of the Bear Lake reservoir is 10,000 acre feet and Bolloque Lake 5,000 acre feet. The two reservoirs will control the flood waters and, in turn, provide for water conservation as well as nesting areas for water fowl. Under the joint venture arrangement the distribution of responsibility is as follows:

(a) The Municipal District of Westlock shall assume operation of the dams and spillway and provide the necessary right-of-way.

(b) Water Resources shall do all surveys, engineering design and construction supervision.

(c) Ducks Unlimited shall pay for construction costs and future maintenance costs.

Special mention must be awarded to the council of the Municipal District and Ducks Unlimited for their efforts in making these projects possible.

The following is a list of projects on which surveys, design, preparation of plans and estimates were carried out during the past year. Although these projects represent a variety of programs, the majority pertain to requests for help under the Municipal Financial Assistance Program.

	Survey	Design	Plans and Estimates
1. Sturgeon Lake control structure	100	100	100
2. Ksituan Flood Control Project	100	100	75
3. Heart River Tailwater Structure	100	100	100
4. Hotchkiss Drainage	100	100	100
5. Spirit River Drainage	100	100	100
6. Chalus Spillway alternative	100	100	100
7. Durda Spillway	100	100	100
8. Sinkevich Complaint	100	100	100
9. Fox Creek Improvements	100	100	100
10. Chocolate Creek Improvements	100	100	100
11. Hythe Drainage	100	100	100
12. Whitemud River	100	100	100
13. North Manning Drainage	100	80	25
14. Teepee Creek	100	80	40
15. Hawk Hills	100	100	100

16. Grimshaw Drainage	100	90	90
17. North Tangent Flood Control	100	80	50
18. Cardinal Lake	20	10	......
19. Willow Creek Protection Works	......	100	100
20. Klein Lake Project	......	50	30
21. Egg Creek Project	......	100	100
22. Bolloque Lake Project	......	100	100
23. Bear Lake Stabilization	......	100	100
24. Buck Lake Stabilization	......	60	30
25. Gleichen Drop Structures for W.I.D.	100	100	100
26. Carrot Creek	......	100	100
27. W.I.D. Seepage Investigations	100	50	......
28. Stimson Creek Telerometer Survey	100	......	......
29. Big Knife Park	50	50	25
30. Beaver Creek	......	50	25
31. Little Beaver Lake	......	50	25
32. East Block Bow River Development	......	80	......
33. Special Areas Investigation	......	60	......
34. Lost Lake Drainage	......	20	20
35. Tindostoll Creek	......	100	80
36. County of Sturgeon	......	100	70
37. Waskatenau Flood Control	......	100	70
38. Manatokan Lake Flood Control	......	100	70
39. Rodef Drainage	......	100	100
40. Round Hill Flood Control	......	100	80

WATER POWER

In the initial development of the Brazeau Development, the dam was to be completed to an elevation of 3170. However, further study resulted in the abandonment of the long overflow dyke on the north end of the dam and the addition of Venturi sluices to the outlet works. The full supply level consequently changed from 3155 to 3164 and the elevation of the dam crest increased from 3170 to 3175 with the storage being increased from 300,000 acre feet to some 355,000 acre feet.

Construction on the canal between the dam and the pumphouse was completed in 1963. Construction of the pumphouse and installation of the pump turbines was completed in the fall of 1964.

The canal between the pumphouse and the outlet works at the penstock should be in operation early in 1965. The turbine, penstock and the generating facilities of 150,000 kilowatt capacity are complete and only awaiting tests before going into operation upon completion of the supply canal.

Operation of the discharge pattern from the Brazeau Dam started early in November of 1963. Water was released, as near as possible, to simulate releases such as will be made from the turbine operation when it begins in 1965. Discharge was arranged to maintain an average of 2,000 cubic feet per second.

Similar releases were again commenced in the fall of 1964. It was found, however, that although 3,000 cubic feet per second was flowing in the river at the mouth of the Brazeau, only 1,100 second feet was recorded at the gauging station at Edmonton. The extreme cold weather was causing a heavy storage of water in the form of ice which was a serious loss of flow at that time of year.

Ground and aerial inspections have been made regularly and records have been kept of flows and backwater stages at various places between the dam and the City of Edmonton.

Bow River

The Ice Committee recommended an extension to the Ice Pack Anchorage below the Louise Bridge in the Bow River at Calgary. The recommendation was approved by the Minister and a construction contract was awarded in 1963. The work was nearly completed in 1963 but due to slush collecting in the pool, the contractor asked to be allowed to finish the work in the spring of 1964. After inspecting conditions it was agreed that a better job could be accomplished by delaying completion until spring. It was also felt that sufficient work had been completed to improve the operation of the Ice Pack Anchorage. In the spring of 1964 the contractor finished the excavation and cleaned up the roads and dump area, leaving the work in very good shape. Experience in the fall of 1964 has indicated that the anchorage has been greatly improved and in spite of the fact that a much heavier ice formation has taken place this year, stoppage has occurred, and until recently, open water has been observed below the anchorage. This anchorage has prevented a high backwater stage occurring in the low area of Sunnyside and has also prevented any possibility of overtopping of the dykes in the low areas below the anchorage.

The City of Calgary has removed the heavy earth fill in the back channel at the head of Prince's Island and has cleaned the back channel to the lower end of the island. Crossing of the channel was accommodated by a small temporary fill at Fourth Street West. This fill was overtopped on July 1, 1963 and several cars were removed for a short period.

Athabasca River

Surveys on the Athabasca River continued during the year including a helicopter survey from Swift Current rapids to McMurray. Foundation and material potentials were reported from aerial photograph information, and an aerial interpretation engineer on this survey now indicates that there are some changes in the sites being considered. This, however, does not specifically locate sites that have not been drilled. The Mirror site has been drilled and is some six miles above the Town of Athabasca. Indications from the drilling suggest that it is possible to construct at this location provided considerable storage and a reasonable sized power plant could be located in the area. It now appears that Lesser Slave Lake is a very important reservoir as a potential for storage on the Athabasca River but no sites on the Lesser Slave River are being considered for development. Reservations have been placed on the area required and some difficulty is being experienced due to the new oil field located in the area but, to date, no conflicts have occurred that cannot be overcome.

Peace River

Reconnaissance survey by air was made from the British Columbia border to Lake Athabasca. An aerial interpretation engineer was included in the party and a report was prepared to indicate that further work was required. Instability of the banks and active movements were prevalent along the river. The first site selected for investigation is approximately one and one-half miles above the Dunvegan Bridge. This site has already been laid out and will be drilled in February in 1965, provided no bad conditions take place. The site listed as being the best on the Peace River in Alberta is the Vermilion Chute, which from aerial examination and from a report to follow appears to be too small in head to be considered economical.

Town of Vermilion Reservoir

There were no problems in 1964 in the operation of this reservoir due mainly to another low runoff season in the area. The water was not released from the reservoir as has been formerly done in October for purposes of providing storage for spring runoff. This release was not made due to a request by farmers who had not completed their haying operation, and by the time that hay had been removed from the channel, cold weather had set in and it was too late to make a release. It will be difficult to lower this reservoir to a reasonably safe level for spring runoff. There have been no complaints from the farmers downstream due to the lack of release of water this winter. However, it must again be emphasized that if this reservoir is to be a satisfactory recreation lake, it requires the construction of a fixed crest spillway of a large enough capacity to pass both spring and summer surges without affecting the lake and without imposing artificial detrimental affects on hay meadows downstream.

Industrial Use of Water

The use of water by industry is becoming a very important aspect of our water use and the lack of suitable water can be a definite deterrent to the industrial growth in an area.

Calgary and the Bow River, above the irrigation projects, have been significantly helped by power developments on the headwaters of the Bow. This situation became more apparent in the Edmonton area with the advancement of industrial development. It was to aid this development, as well as to alleviate pollution, that the Brazeau Project was started. During 1963-64 minimum flows were maintained at an average of approximately 2,000 cubic feet per second, and during the fall of 1964 water was again released from the reservoir of the Brazeau Dam, even though power development had not been put into operation. Enough water was released in order to maintain this 2,000 second feet. Under winter conditions it was very difficult to maintain high flows without causing considerable problems in ice jamming. After the ice cover has been completed and the flow pattern established, it is felt that there will be very little problem in the Edmonton area due to ice jams. Another section of industrial growth is the use and creation of storage for power development. One very distinct advantage of this type of development is that the use is almost non-consumptive, although fairly large ponds or high flows are required.

Major users and diversions of power development are:

Canadian Utilities	—Forestburg—Battle River —Vermilion—Vermilion River —Valleyview at Valleyview —Drumheller—Red Deer River
Calgary Power	—Lake Wabamun —Edmonton—North Saskatchewan River —Lethbridge—Oldman River —Medicine Hat—South Sask. River —East Kootenay—Hart Lake

Major users and diversions for cooling and industrial users are:

Consolidated Mining and Smelting	—Calgary
British American Oil Refineries	—Calgary and Edmonton
Imperial Oil Refineries	—Calgary and Edmonton
Texaco Oil Refineries	—Edmonton
Canadian Chemical	—Edmonton
British American Oil Company	—South Pincher Creek—Drywood River
Shell Oil Company	—South Pincher Creek—Drywood River

On the above development the Canadian Utilities Limited, both at Vermilion and Forestburg, have created reservoirs that are used for recreation.

British American Oil Company and Shell Oil Company have created reservoirs that could help in headwater storage. These reservoirs in all cases are required in order that ponds of sufficient size may be maintained for cooling purposes.

Gravel Removal

Gravel removal permits are handled by the Department of Lands and Forests, however, where they affect rivers or any drainage areas the requests are submitted to Water Resources for their inspection and approval. New regulation by the Department of Lands and Forests also demand that methods and plans of removal of gravel be submitted to the Department of Lands and Forests also demand that methods and plans of removal of gravel be submitted to the Department before removal of gravel begins. It is hoped that these changes will improve the gravel excavation operation problem.

International Streams

The area along the Alberta section of the international boundary has experienced its fourth consecutive dry year and all dugouts and streams are either dry or very low. Inspections have been made on three streams that cross the international boundary.

First, from the eastern side of the province, Sage Creek has again been closely inspected. Due to the extremely dry year, almost no flood irrigation was done on either side of the boundary. No work had been done at the time of the August inspection. There had been some work in 1963 in starting a bypass that had been recommended near the Simpson Ranch, but this had not been completed. Fence crossings had been cleared after this inspection and some obstructions in the channel were also removed.

The second stream considered was Deer Creek. No detailed inspection was done of this creek but a quick examination was made in driving between the two streams of Sage Creek and the lower branch of the Milk. There was no flow observed and there was water in a number of deep holes.

The third stream examined was the South Fork of the Milk River. A ground and aerial inspection was made in 1963 by the United States and Provincial Government engineers. But, due to the fact that there was some small amount of water running across the boundary in 1964, it was not felt necessary that an aerial inspection be made this year. A thorough ground inspection was made and no new works were observed. There were no diversions in evidence at the time of the inspection and very few had been made during the season. Conditions on this stream were considered to be good on both sides of the boundary.

IRRIGATION

Irrigation projects in Alberta experienced another successful year in 1964. Crop production was hampered in some areas due to a late wet, cold spring together with a fall season that ended abruptly with early killing frosts. This was in contrast to conditions in 1963 which saw an early spring and an extremely late fall.

It is noted that the number of acres receiving water from year to year continues to increase. Table III shows that acres irrigated in the various districts for 1963. It is not possible to present the figures for 1964 since the annual returns from the irrigation districts are not received until after the departmental annual report has been compiled.

TABLE III
STATISTICS IN CONNECTION WITH MAJOR IRRIGATION DISTRICTS IN ALBERTA

Name of District	Approx. Constructed Area	Receiving Water in 1963	Source of Supply
St. Mary-Milk Rivers Dev't.	180,000 ac.	170,000 ac.	St. Mary River
Magrath Irrigation District	8,530 ac.	7,250 ac.	All through the works of the S.M.R.D.
Raymond Irrigation District	20,411 ac.	18,500 ac.	
Taber Irrigation District	37,185 ac.	33,902 ac.	
Western Irrigation District	60,000 ac.	25,000 ac.	Bow River
Eastern Irrigation District	200,000 ac.	192,324 ac.	Bow River
Bow River Dev't. (Federal)	95,000 ac.	72,300 ac.	Bow River
Bow River Dev't. (Provincial)	25,000 ac.	14,967 ac.	Bow River
Mountain View Irr. District	3,000 ac.	2,789 ac.	Belly River
Leavitt Irrigation District	4,511 ac.	4,511 ac.	Belly River
Aetna Irrigation District	6,000 ac.	2,315 ac.	Belly River
United Irrigation District	33,000 ac.	27,012 ac.	Belly River
Lethbridge Northern I.D.	70,000 ac.	64,510 ac.	Oldman River
MacLeod Irrigation District	Not Operating		Oldman River
Ross Creek Irrigation District	2,000 ac.	200 ac.	Gros Ventre Creek
TOTALS	864,515 ac.	635,580 ac.	
Total for 1962	......	632,261 ac.	
Total for 1961	......	604,605 ac.	

Of the youngest projects in the province on the S.M.R.D. there was about a 9% increase in the area irrigated in 1964 over that of 1963, and better than a 10% increase on the Bow River Development Project, West Block.

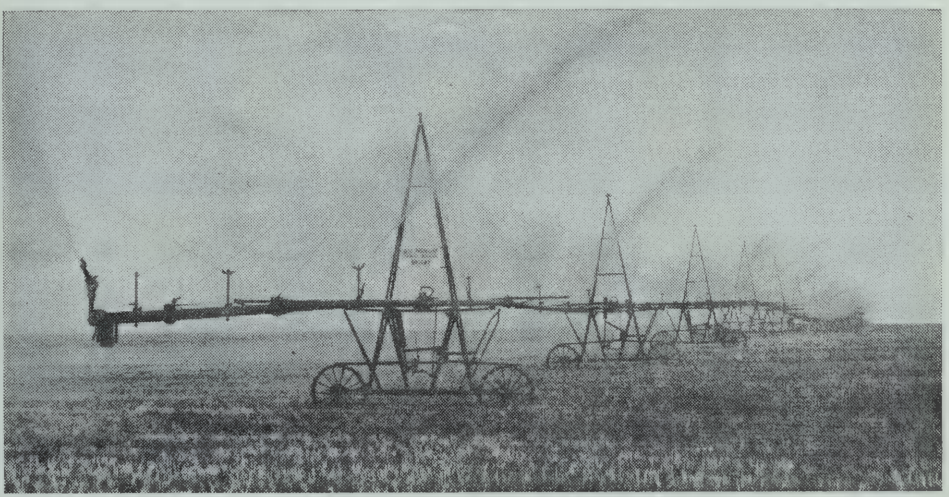
It is interesting to note also that although the number of acres being irrigated is increasing in the S.M.R.D., not only in the eastern division but also in the western section, the actual amount of water supplied from the headworks has decreased since 1962. This speaks well of the improved irrigation practices and the consequent increased efficiency.

TABLE IV

Year	Water Delivered Acre Feet
1956	202,432
1957	314,493
1958	272,132
1959	245,260
1960	355,008
1961	362,996
1962	525,634
1963	452,128
1964	350,473

This increased efficiency can be attributed in part to the progressive land development program that continues to gather momentum throughout the area. This has further been enhanced by the government supported financing arrangements available to farmers through application to their irrigation district.

The ever increasing use of sprinkler irrigation methods can also, in part, be credited with resulting improved irrigation efficiency and increased irrigated acres. Over the past few years, interest in this method of irrigating has progressively increased, fostered to some degree by manufacturers and suppliers of sprinkler equipment. One of the more revolutionary pieces of equipment to make its appearance in Alberta is shown in the photograph below.



This equipment rotates about a fixed hub in the middle of the quarter section and each 'A' frame is independently driven by a hydraulic cylinder so that by rotating through a complete arch of 360 degrees, the entire quarter is irrigated.

It would be remiss not to give credit to the administration staff of the S.M.R.D. for improved irrigation efficiency as a result of their continuous conscientious efforts towards improved operation. It would be remiss also to infer that the S.M.R.D. is the only irrigation project on which accomplishments have been made in this respect, since the welfare of all projects is of interest, if not concern, to us. The S.M.R.D. is, however, the youngest of the larger schemes and therefore transitions and developments taking place are of particular interest. Other large projects, although not without their problems, have reached a stage of maturity and stability yet to be obtained by the newer developments.

One of the historically significant occurrences of the year is to be found in the request received from a number of the irrigation farmers located immediately east and south of the Taber Irrigation District, to be permitted to join the Taber District and discontinue their association with the eastern division of the S.M.R.D. Arrangements for this transfer are well underway and each farmer who would be effected has been personally notified of the terms of the contract, and has been given the opportunity to register objection. If no objections are received, it is anticipated that the transfer will become effective sometime during the month of February, otherwise a plebiscite will be held to obtain an expression of wishes from the farmers.

A second event, which could prove to be one of some significance in future years, was the initiation of physical and economic studies of irrigation in Alberta. These studies are being carried out under an A.R.D.A. program and are three-fold in nature. Engineering studies are being conducted to determine the cost of operation of irrigation projects, and an appraisal of the existing condition of the physical works. This phase of the study is being undertaken by the P.F.R.A.

An economic study to determine the economic benefits from irrigation is being conducted by the Federal Department of Agriculture, Economics Branch.

Utilizing the information from the above two aspects of the study, the University of Alberta Economics Division of the Department of Agriculture is conducting a study to determine the value of production of various crops on irrigated land in comparison with dry land production. It is hoped that this study will reveal a relationship between the input into the irrigation industry and the corresponding output and benefits, not only those of a primary nature, but also secondary and tertiary benefits. Further, it is proposed that the results of these studies be used to assist in the development of a government policy on irrigation which is equitable to all projects and which will serve to enhance the effectiveness of irrigation production in the province.

To accomplish this latter objective the Minister of Agriculture appointed the Irrigation Policy Committee consisting of Mr. C. J. McAndrews, Colonization Manager of the Department, Dr. G. R. Purnell, Director of Farm Economics Division, and Mr. R. E. Bailey, Chief Engineer of the Water Resources Branch. This committee is charged with the responsibility of analyzing the results of the physical and economic studies, as well as the acquisition of any additional information which may be considered pertinent to the formation of a recommendation to the Minister on irrigation policy. The committee is also responsible for maintaining a close liaison with the officials of the irrigation districts and the general public for purposes of relaying and obtaining information that is vital to the objective of the program.

Although, as mentioned above, many of the irrigation projects have reached a certain degree of maturity, it is by this very fact that they are also facing problems which might be attributed to age. Many structures are in need of rehabilitation or replacement, many areas are confronted with seepage and alkali problems, and the remedy for these problems is only possible as far as financial capabilities will allow. Some districts require complete rejuvenation in order to restore the work to a state of efficient operation and it is in recognition of these facts that the current economic studies and the Irrigation Policy Committee have been initiated.

It was also decided that there would be no further expansion of government services to irrigation districts, nor extensive development of large tracts of irrigated lands, until such time as the economic studies were completed and a policy formulated with the exception of programs presently underway, particularly those pertaining to drainage and seepage control on the S.M.R.D. and B.R.D. which must continue. It became apparent, however, that certain problems of drainage within irrigation districts were also adversely affecting current municipal road building programs. To avoid conflict of interests and to establish unity of purpose in such circumstances, a three-way agreement was proposed which provided for the construction of such drainage through mutual participation between the municipality, the irrigation districts and the Water Resources Branch. This proposal was accepted by the government and enthusiastically received by the municipalties, counties and irrigation districts, to date, agreements have been signed between the County of Newell and the Eastern irrigation District; the County of Forty Mile and the S.M.R.D.; the Municipal District of Taber and the Taber Irrigation District; the County of Lethbridge and the Lethbridge Northern Irrigation District.

It was as a result of the establishment of this three-way agreement policy that measures to rehabilitate the Battersea Drain in the Lethbridge Northern Irrigation District, under an A.R.D.A. program, was made possible. All other A.R.D.A. submissions pertaining to projects within irrigation districts that are not related to municipal road building programs are being held in abeyance until such time as an established irrigation policy is formulated.

In the 1961 Annual Report it was noted that the Taber Irrigation District had again requested the government's consideration of constructing an extension of the T.I.D. to the northwest of the Town of Taber. Observations from studies undertaken at that time prompted the Irrigation Advisory Board to recommend that this development could not be justified.

The proposal continued to receive periodic consideration, however, and after some revision and further analysis the Planning Board recommended that construction be undertaken. Work was started in the fall of the year by the Water Resources staff at Grassy Lake and is expected to be completed sometime in 1965.

The 1961 report also made mention of requests received from residents south of Seven Persons to provide facilities for additional irrigation and requests received from farmers in the New Dayton area, Etzikom Coulee and Tyrrell Lake areas for the development of additional irrigation. Since that time studies of these proposals have been underway, much of the physical field work having been undertaken by the P.F.R.A. Final reports are not as yet in the hands of the Irrigation Planning Board.

A survey and design pertaining to the rehabilitation of the Lethbridge-Coaldale District, carried out by P.F.R.A., is nearing completion and it is anticipated that the final report will be forthcoming early in the new year.

United Irrigation District

Exceptionally heavy use of water was experienced by this district in the month of July. Coarse grains suffered because of the late spring and early frosts, however, hay and other crops were excellent. The livestock economy was especially favored and except for lowered prices, did exceptionally well. Irrigation was practiced until November 12 when trouble was experienced by night operations of sprinklers and flood irrigation that could not be well handled. The very late spring and apparently dry fall, together with high flow in the rivers prompted this action.

The C.P.R. railroad abandonment program, the P.F.R.A. Waterton Dam, construction of the canal to the Belly River and the main highway construction had an appreciable influence on the district planning and structure program. These construction activities have been and are in a state of flux due to the fact that the highway and canal routes depend upon the existing railway right-of-way. The canal may or may not require a railway bridge and the highway may or may not require right-of-way. The Waterton River dam has also made necessary the abandonment of the Waterton River bridge and the crossing of the dam is now mandatory. Further, the CPR spur line across the river at Drywood may become the centre. These matters have very serious consequences upon a district which is isolated between rivers and an Indian Reserve such as the United District. The management of the district found itself faced with many problems other than that of irrigation.

United Irrigation District Colonization Manager

The work of the Colonization Manager has been one of clarifying titles and performing legal surveys to define the limits of the hamlets. This condition was brought about by conditions in the thirties and it is now the problem of the municipality and Colonization Manager to clarify these matters as soon as possible.

MacLeod Irrigation District

This district is dormant but it is necessary to carry out periodic inspections of the works and to maintain bridges, etc. Further, certain legal obligations still devolve upon the district and will do so for some time.

Lethbridge Northern Irrigation District

The spring being late, work was carried on in construction of main district works. Keho Lake reservoir had to be filled to capacity so that work on the main canal could be carried on. This brought about flooding of roads which were in the reservoir site and were not known to be in a position to be flooded.

Irrigation began at the very late date of June 13 and continued until as late as November 13. The water users were well pleased with the late irrigation made possible because of the high water in the Oldman River.

The gates on the diversion dam on the Oldman River had reached a point where major maintenance became necessary and they have consequently been removed for repair. Some of the other main structures throughout the district will require major maintenance in the very near future. A number of seepage problems were investigated and remedial measures proposed. The Land Development Division of the Colonization Branch, as well as Water Resources personnel from Lethbridge, assisted in carrying out these investigations. In addition, Water Resources crews and equipment from Grassy Lake undertook the replacement of a number of concrete pedestals supporting the main canal flume over the Oldman River.

Raymond and Magrath Irrigation Districts

During 1964 numerous projects that had been initiated in 1963 were continued, with several being completed.

By midsummer the detailed drainage survey being carried out on the Raymond Irrigation District was completed. To accomplish this, a further 70 miles of field surveys were required. Also plotting, design and compilation of field notes to obtain a detailed estimate have been completed.

Preliminary investigations and field surveys were initiated in the latter part of the year for proposed surface and outlet drainage in the Magrath Irrigation District. Twenty-four miles of precise levels to establish bench marks and 15 miles of surveyed line has been completed.

Further engineering and technical assistance was provided to the Raymond Irrigation District in the construction of a reservoir south of Stirling. The dam, installation of a conduit structure, and other details were completed and in operation by the beginning of the irrigation season. Considerable work was done in the area south of Raymond along Cross Coulee. Twenty miles of profile from Stirling reservoir to Cross Coulee dam was completed. Engineering and survey assistance was provided in the construction of a cutoff on Cross Coulee.

Numerous field surveys and design work were completed on several lateral re-locations, extensions and drainage problems in the Coaldale-Cranford areas. The proposed Malloy drain south of Coaldale was studied with surveys and design being completed.

Mountain View-Aetna Main Canal

The Belly River diversion and the main canal supplying water to the Mountain View Irrigation District, the Leavitt Irrigation District and the Aetna Irrigation District continued to be operated and maintained by the Water Resources Branch.

During the season irrigation demand was normal and only taxed the ditch capacity for a very short period at the end of July. Belly River flow held firm enough so that it was only necessary to shut down the headgates for the last 10 days of August. Because of reduced demand on the United Irrigation District early in September, it was possible to divert water into storage and at no time was Driggs Lake reservoir lower than three-quarters full.

Although irrigation demand put little strain on these works, heavy rains and the flood early in June caused considerable damage. At the time much havoc was averted by alert action of the watermaster. Waste water gates were promptly opened and the headgates closed to relieve pressure on the canal. In spite of this action canal banks were overtopped in numerous places where underdrains could not handle the flood or where the volume of runoff picked up between wasteways exceeded canal capacity. Erosion damage of canal banks was less than feared because of the short duration of the critical period and because the fills were well sodded at most points. The canal was still operable after the flood.

The most extensive flood damage was at the diversion structures on the Belly River. Lesser damage was caused by Lee Creek on the syphon bridge crossing. Because of light irrigation demand at this time, and because of storage available in Driggs reservoir, there was no need to curtail service. Although headgates on the Belly River were closed, high water filled the canal below the diversion. This water and swollen creeks and water courses entering the reservoir caused it to rise to about a foot and a half above full supply level. This high water resulted in some anxiety but it was possible to waste the excess down Mami Creek in the weeks following. The dam and spillway did not suffer any damage.

During the year routine maintenance required the re-building of two timber bridges and repair to the deck on one timber bridge. Two syphons required the replacement of a few split staves, four timber chutes had leaks patched and three miles of ditch bank were seeded to grass. As a result of the flood, the Lee Creek syphon bridge required minor repairs. The flood on the Belly River exceeded the weir capacity and caused the river to make a cutoff which by-passed the entire structure. After a three week wait for river levels to recede and another three weeks of work to restore the flow over the weir, it was again possible to divert to storage. During this period stored water supplied all the requirements of the three irrigation districts.

Bow River Development

In 1964 construction work on the Bow River Development continued on a number of small jobs. These works are so diverse and scattered they do not lend themselves to contract work. For this reason no contracts were let in 1964 and all the construction was handled by Water Resources forces or by rented equipment.

Canal seepage control was a major item of work. While the loss of water due to seepage is usually too small to be significant, the damage it causes to land is of concern. Prevention of this damage can be attempted either by preventing the seepage from occurring through the use of canal lining, or by deepening the canal into a less porous material, or by intercepting the seepage water with open drains or buried tile drains. In deciding on the best remedy for any particular situation, cost is often the deciding factor but other factors are also considered. When canal seepage is not the only cause of high groundwater conditions, interceptor drains can provide a more effective solution than can canal lining. Outlet ditches and interceptor drains require agricultural land that is taken out of production and cause severance problems. At the same time these ditches can often serve as surface drains or spillways. These and other factors are considered before a decision is made on the appropriate course of action.

During the year 12 miles of interceptor and outlet drains were constructed, 3500 feet of tile drains were installed, 2700 feet of plastic canal lining and 4400 feet of canal deepening were completed. Bank levelling was finished along 20 miles of ditches previously constructed and 400 acres of grass seeding was done along 70 miles of ditch.

Works on the irrigation distribution system to service additions to the project consisted of a mile and a half of new lateral, nine farm deliveries and one timber bridge.

Two farm dugouts were excavated as part of the right-of-way settlement where drainage outlets interfered with stockwatering reservoirs.

Appurtenant to the aforementioned works, 1500 feet of culverts, two miles of fencing, 33 drops, 1000 cubic yards of rip-rap, 2600 cubic yards of gravel and 12,000 feet of timber were used.

During the winter modifications were made on 79 texas gates, and Water Resources forces at Enchant poured 16 precast concrete structures. These were the first units cast at Enchant. This precasting work will probably replace topographic surveys as a winter works project for this establishment.

At various times through the year men from Enchant worked on loan to other projects such as the surveys and periodic water table readings for the West Coleman drainage problem, the construction of new bridges and repairing chutes and syphons on the Mountain View-Aetna canal, the building of structures for a drainage project at Hotchkiss and the pumping of water for the Lamont waterworks.

Survey work associated with 1964 construction and preliminary to next year's program consisted of 50 miles of transit line and 50 miles of levels with 19 miles of profile plotted.

Next year's construction will see a considerable increase in seepage control work which has already been approved by the Drainage Committee. Lost Lake, which received natural runoff and the irrigation waste from about two-thirds of the B.R.D., Western Block, will be outletted and a limited amount of distribution work will be done.

St. Mary and Milk Rivers Development

Another exceptionally good construction year was experienced in 1964 on the S.M.R.D. Because of extremely dry conditions in the fall of 1963 and spring of 1964, spring operations were again under pressure from demand for irrigation water. However, the excellent co-operation between the Water Resources Construction Division and the operation and maintenance personnel, and the improving co-operation from the farmers, made it possible to virtually complete the required lining in the spring.

During the year another record for this work was established. This was due mainly to the extra privately owned equipment which was hired and used in this operation. In addition to the Water Resources gradall, three additional gradalls for both the spring and fall lining work, and one extra D7 Cat and Dozer were obtained on rental. This enabled the complete installation of 16.4 miles in length of plastic lining. In addition, 4.0 miles of over-excavation of canals was completed to receive the plastic and be backfilled early in 1965. Bank build-up work was finished on another 3.0 miles of canal so that the gradalls will be able to begin operations in the early spring. The widths of the plastic used varies from 18 feet to 40 feet wide. One short section of canal was lined with a double 24 foot width because the original 44 foot width ordered could not be supplied.

The canal deepening operation this year was relatively small in comparison with previous years. The total deepening work to facilitate seepage control amounted to 3775 lineal feet. This was offset somewhat by a larger amount of canal re-location, approximately 8120 lineal feet of which was done to provide better seepage control. Of this amount, 2350 lineal feet was on the main canal southeast of Bow Island and the other 5770 lineal feet was on the smaller laterals throughout the project.

More tile drain was installed in 1964 than in any previous year amounting to a total of 24,136 lineal feet, or 4.6 miles. Of this, 11,450 feet was put in the south Horsefly area, 6,393 feet was installed in the Purple Springs area and 6,293 feet was constructed in the Medicine Hat—Seven Persons area. One portion of the work in the South Horsefly region involved installing a tile into an open drain that had been excavated approximately four years ago. Some adjustments on grade were necessary and this required dynamiting of bedrock which resulted in considerably higher construction costs than usual. The remainder of the tile drains were installed without any extra unforeseen problems. All these drains appear to be functioning very well and the overall results of the tile drainage program is very gratifying.

The program also included construction of approximately 20 miles of open drainage having an average depth of 6.0 feet. The longest section consists of an eight-mile drain in the Seven Persons area. The remaining 12 miles were in short lengths dispersed throughout the project area.

A new principle for effective drainage was tried for the first time on the S.M.R.D. consisting of the construction of a drain approximately nine feet deep with relief wells drilled in the bottom of the drain to an additional depth of 10 to 15 feet. The relief wells were backfilled with uniformly graded pea gravel allowing the free upward movement of deep water into the drain. This type of installation was undertaken only in those areas where there was a suspicion of artesian aquifers below the depth of the proposed drain. The drilling work was undertaken by the drainage investigation service of the Colonization Branch, and the project has, so far, worked very well.

The Irrigation Planning Board recommended, and the Minister approved, the construction of the long proposed Taber Northwest Extension. Accordingly, an agreement was prepared which provided that the T.I.D. would include the area within their boundaries; generally assist in the contracts and public relations problems which would arise with individual farmers in respect to construction details; sign up all water right agreements relative to the project. Similarly the Water Resources Branch would undertake the design and construction of the project and the entire operation would be correlated with the Board of Trustees of the Taber Irrigation District.

Weather conditions permitted some construction to be undertaken in the fall of the year and, so far, 6100 lineal feet of excavation has been completed on the south end of the project and it is anticipated that the drop structure will be installed in this section during the winter. The main lateral earthwork is nearly completed on a length of 1800 feet of canal, and this will be lined with plastic before the work is completed. The two railway crossings immediately west of Taber have been installed. All of the checks and drop structures on this project will be made of precast concrete manufactured during the winter at Grassy Lake. It is expected that all of these will be installed by April 1, 1965. The target date for completion is June, 1965 in order that the area may be served with water during the coming irrigation season.

The only other extension work on the S.M.R.D. project consisted of two main canal turnout structures installed so that areas above the present low line system could be served with irrigation water.

Other miscellaneous work consisted of:

(1) Dozer and scraper work on the Belly River diversion following the extreme flood conditions of the late spring, in order to allow for adequate diversions of water for the Mountain View, Aetna and Leavitt projects. This work was done by request from Mr. R. J. Knight, and under his supervision.

(2) The re-building of several pedestals supporting the irrigation flume crossing the Oldman River west of Fort Macleod. This

work was done at the request of Mr. P. M. Sauder, Official Trustee of the Lethbridge Northern Irrigation District.

(3) A portion of the Little Bow Canal diversion from the Highwood River at the Town of High River was cleaned at the request of Mr. A. G. Underhill, of the Calgary Office.

(4) Design, preparation of contracts, surveys and supervision of some main canal re-location work south of Taber was done for the Taber Irrigation Dstrict.

Associated with the above work on the S.M.R.D., approximately 350 miles of surveys were completed. Of this, 40 miles of surveys was done in connection with road drainage work in the County of Forty Mile, 30 miles of survey was done in connection with road drainage work in the Municipal District of Taber and 37 miles of survey was done in relation to some main canal re-location work undertaken by the Taber Irrigation District. Topographic surveys on three sections of land, or approximately 2000 acres, were also carried out for design of possible irrigation extension development.

In addition to government owned equipment being used on the S.M.R.D. construction, some major equipment was obtained by rental at various times during the construction season.

Various field surveys for proposed drainage were carried out during the summer by the Water Resources staff. Approximately 75 miles of precise levelling, to establish bench marks, together with 175 miles of traverse and profile surveys in the Commerce and Picture Butte units, were completed. Plotting of the field notes, design and estimates are also completed.

Further study was made of the Battersea drainage system. Field surveys, plotting, design and detailed estimates were completed. Initial survey and design work was undertaken on a structure necessary to outlet the drainage water from the Battersea drain into the Oldman River.

Assistance was also given by the Water Resources Branch on several lateral re-location problems. This included investigational work, design and construction surveys.

DISTRICT OFFICES

Lethbridge District Office

The Lethbridge District Engineer again supervised new construction on the Bow River Development, Western Block, and managed the operation and maintenance of the Mountain View-Aetna main canal. These activities are reported in other sections of this report.

Complaints about illegal diversion or inadequate drainage provisions required fewer inspections than usual. Water right applications, disputes and problems requiring consultation were also less in number. Because of the June flooding there were many flooding and erosion problems investigated. In some instances works were performed to avert future damage or to restore pre-flood conditions. Remedial works were not recommended on a few of the Belly River problems because these will probably be alleviated when the Waterton dam is put into operation. Existing policy does not allow action in some of the complaints received.

Ten complaints of erosion on Lee Creek resulted in action at seven locations. Work at three sites on the St. Mary River resulted from five complaints. On the Belly River, after inspecting seven complaints, work was done at two problem areas. No work was done on the Oldman River where only one problem was investigated. Six of the Lee Creek problems involved municipal roads and were remedied through the provisions of the Municipal Financial Assistance Policy. Work at one of the Belly River jobs involved the Mountain View-Aetna diversion which is maintained by Water Resources. Woolford Provincial Park received the benefits from work at one of the St. Mary River sites.

During the winter and spring records were kept of river and groundwater levels in West Coleman. This data was needed to give a clearer picture of causes and to evaluate possible solutions of the groundwater problem there.

Watermaster service was again provided on Sage Creek to assure a reasonable division of water between Alberta and Montana irrigators.

The Parks Branch was advised on proposed undertakings at Woolford Park, Elkwater Lake and Writing-on-Stone Park.

During the year contract work on Chain-of-Lakes reservoir started. This reservoir will help regulate Willow Creek and insure water supplies for Claresholm and Granum and for farms along Willow Creek, Staman Creek and Mosquito Creek. It is being built by P.F.R.A. and was initiated as a result of Water Resources reconnaisance surveys in 1957.

Calgary

This year has been another year of below normal precipitation in the Calgary area. However, May, June, July and September showed above normal precipitation. Runoff from the mountain streams has been extremely variable. On the Highwood River, late September flows were low enough to create problems at the Little Bow River diversion. Generally the flows in this area were slightly above normal for the year.

Some portions of the Special Areas experienced an extremely dry season. This was especially true of the southern portion where water is scarce.

Projects investigated by the Calgary Office continued to increase. They ranged from fish ponds to oil well injection schemes, from farm water supplies to industrial plants, and to water for testing pipelines. Complaints were numerous in the early spring due to the dry period, but after adequate rainfall in September, these reduced considerably in number.

The Calgary area had no major flooding problems on the rivers during the year. The major problems were in the Lethbridge-south district where serious flooding occurred. Complaints are still being received from damage due to the 1963 floods on the Highwood, Sheep and Elbow Rivers.

Repair work was completed on the dyke west of High River prior to the spring runoff period and it withstood the year's high water without any problem.

The channel of the Highwood River in the High River area was cleaned of gravel bars and debris to provide a better channel for the high flows of the river and to help prevent flooding. The work was undertaken by the Town of High River in co-operation with the province.

Approval has been given for the construction of 1200 feet of protective dyke in the vicinity of Bragg Creek under a financial assistance program with the Municipal District of Foothills. The work will be completed prior to the 1965 runoff period and will protect the road to the new government campsite, as well as a portion of the village area, from erosion by the Elbow River.

A report was completed on the flood problem at Okotoks and the possible remedial action which could be undertaken.

Inspections and advice were given on other erosion problems. In the area east of Okotoks a local Bible Camp organization made a cutoff on the Sheep River to protect their property from the high waters and erosion.

On a section of Willow Creek in the forest reserve area, an experiment was started to test the effectiveness of metal jacks in preventing erosion. The area was particularly susceptible to erosion and it is hoped that these jacks will prove successful and provide a cheaper method of erosion prevention along rivers.

As has been the case for the last few years, the Calgary Office provided the watermaster for the Manyberries Creek basin. This continues to be a real problem in that in the dry years the water supply is insufficient to meet demands, resulting in complaints, accusations, and in general, a very difficult time for the watermaster.

Surveys continued on the checking of projects in the Medicine Hat area. During the year surveys were undertaken on Peigan Creek and Manyberries basins. Some 300 projects were inspected, approximately 25% of which were unlicensed and in reality illegal. Every effort is being made to rectify this problem.

The continuing urban expansion into the rural areas creates many requests for groundwater information. These requests along with those received from farmers are referred to the Research Council, Groundwater Division, or to the Health Department where the information is available to satisfy the majority of the requests received.

The Special Areas started the year with great apprehension due to a series of dry years prior to 1964 and a very dry spring. Stockwater was in short supply and pumping was required to fill dugouts in certain areas. Studies were made in Edmonton into possible emergency methods which could be undertaken if the dry period continued. Late fall rains alleviated the condition somewhat and with any spring runoff in 1965, the water shortage should not be too serious. The P.F.R.A. constructed some 300 projects in this area during the year. Plans were also well advanced regarding the construction of a dam on Blood Indian Creek in the Special Areas to provide stockwater for those downstream along the creek.

As is usual during dry periods, the P.F.R.A. received many requests for small dams and dugouts, especially in the Special Areas and vicinity of Medicine Hat. An increasing interest in small water projects was noted west of Calgary. An estimated 600 dams and dugouts were constructed in the southern portion of the province by the P.F.R.A. during the year.

The P.F.R.A. began work on the Chain-of-Lakes dam on Willow Creek west of Nanton which will create a storage reservoir five miles long and which will provide flows in Willow Creek and Stimson Creek.

A meeting was held with the P.F.R.A., Small Projects Division, to discuss mutual problems and to improve the general relationship between the Water Resources and the P.F.R.A. field staff.

Ducks Unlimited projects north of Hanna supplied the source of stockwater in that area during the early spring drought. A new project has been completed this fall on Blood Indian Creek which could help the water shortages. The Ducks Unlimited organization plan to concentrate their effort in the Special Areas during the next few seasons in the eastern part of the district where the water shortages have been acute. This year has seen a clean-up of the administrative details on the existing projects.

The program of crest stage gauge installation continued. Eighty-one crest stage gauges are now in operation covering the area from Castor south to the United States boundary. Some problems have occurred with these gauges due to public tampering.

The Federal Water Resources now have 203 gauging stations in Alberta. These consist of 185 operated by the Federal Water Resources and 18 operated by other organizations. The Province of Alberta contributes to the installation and operation of 116 of these gauging stations in the province. A breakdown of the number and type of gauges existing is shown in the following table:

73 runoff stations
58 irrigation stations
18 power stations
14 flood control stations
11 navigation stations
11 sedimentation research stations
8 water supply stations
4 recreation stations
4 inter-provincial water management stations
2 regulatory stations
4 multiple purpose stations

A meeting was held with Federal Government officials to discuss problems which have occurred due to the years of low flow on Lodge and Middle Creeks. These streams are international tributaries of the Milk River and the flows have been divided under the Milk River Treaty between Canada and the United States. Alberta has co-operated in every way possible to ensure that a minimum of conflict occurs between the two agencies. During 1964 water was released from storage in Alberta to make up deficiencies in Canada's releases to the United States.

Town water supplies continued to be a problem. Olds found new groundwater supplies and according to reports has sufficient water to last for twenty years. Glenwoodville built a pipeline to the Belly River for its supply. Three Hills is at present investigating potential groundwater sources to augment its present system. Hanna, due to timely rains and runoff continued to have adequate water. Many other towns are in a position that may necessitate greater supplies in the near future. In Calgary the Glenmore filtration plant is being expanded to take care of the city's present needs, but long range plans are being made to tap the Bow River at Bearspaw.

The Technical Advisory Committee on Watershed Research held one meeting in the year to discuss the research program being developed in the Eastern Rockies area. The Water Resources Branch agreed to continue to provide the services necessary to undertake all the topographic surveys of the research area. Surveys were begun on Streeter Creek research basin but had to be abandoned due to heavy snows. The topographic surveys and boundary surveys of both Streeter basin and Marmot Creek are to be completed as soon as possible.

As Chairman of the Hydrometric Committee of the Technical Co-ordinating Committee, the Calgary District Engineer is responsible, along with the committee, for the research area.

The District Engineer at Calgary continued his representation on the Calgary Regional Planning Commission. This membership results in the Water Resources Branch having an active part in the planning in the area. The control of the subdivision of lands along streams is one of the more urgent problems facing this commission and, in fact, the Water Resources Branch. The need for placing restrictions on the flood plains in this area is readily apparent. The Calgary Office have requested that certain areas be declared 'flood plain zones' under Section 94 of The Water Resources Act. These are under active consideration by the government.

A map has been prepared delineating the flood plain in the Calgary Regional Planning Commission area from aerial photographs and will be used in the regulation of subdivisions on flood plains.

The Committee set up to take over P.F.R.A. community projects was very inactive during the year and no transfer of projects was made. The Carolside dam spillway has been completed and it will be transferred to Water Resources as soon as the right-of-way problem is solved.

In January of this year the District Engineer was appointed as one of the two Alberta members on a committe to set up the terms of reference for a study of the physical resources of the Saskatchewan-Nelson River system. The committee completed its work early in December and has reported back to the Honourable H. E. Strom, Chairman of the Provincial Ministers Committee.

The Prairie Provinces Water Board held three meetings during the year. The District Engineer was appointed to two committees of the Board, one to consider apportionment and the other to consider pollution.

The Apportionment Committee was appointed by the Prairie Provinces Water Board to consider all aspects of apportionment of the interprovincial waters of the Saskatchewan-Nelson River system. Two meetings of the committee have been held and some progress has been made toward the final report to be presented to the Prairie Provinces Water Board in one year's time. The problem is difficult and complex and all avenues must be investigated to ensure the best possible solution.

The Prairie Provinces Water Board Pollution Committee was established to study criteria for pollution studies. The Alberta Department of Health have already made plans to work along with the Canadian Council of Resource Ministers rather than the Prairie Provinces Water Board.

During 1964 the Calgary Office prepared a submission for the Minister to the Prairie Provinces Water Board requesting that Alberta's water be increased to quantities more compatible with present knowledge of irrigation water use, than those currently in effect.

In the summer of this year the Calgary District Engineer was appointed Alberta's representative on the National Committee for the International Hydrologic Decade. The International Hydrologic Decade is a world-wide program sponsored by the United Nations Educational, Scientific and Cultural Organization designed to accelerate the advancement of the science of Hydrology over the next decade. The program begins in 1965.

In order to facilitate the program in Alberta a committee was formed of those organizations involved in, or interested in, the science of hydrology. The Alberta Committee for the International Hydrologic Decade consists of membership from various federal and provincial government agencies, the University of Alberta at Calgary and Edmonton, private industry and from the consulting engineers. This committee, of which the District Engineer is Chairman, acts in an advisory capacity and co-ordinates the programs of the various agencies.

To date some 43 programs have been submitted to the Federal Committee for inclusion as Canada's contribution to the Decade. Of these, 20 have received approval as Decade projects. Further submissions will be made as the program develops. The initial response of the various Alberta organizations ensures that Alberta will be able to make a worthwhile contribution to this program.

The proposal to create a dam on Coral Creek received further consideration. Blasting successfully created a small dam and it is planned to enlarge this next year.

As is usual every year, requests were received for information regarding pumping for large irrigation schemes from the Bow and Red Deer Rivers. These schemes appear premature but they do indicate that there is some interest in improving the use of these lands. It is only a matter of time until these projects will become economically feasible.

Co-operation with other government agencies continued at high level. An inspection was made along with engineers from the Edmonton office of lands to be subdivided for homesteads for the Department of Lands and Forests. Road problems in the Bragg Creek area, as well as other problems were investigated along with the Department of Highways. The municipal districts presented their normal number of requests for assistance. Various drainage problems were inspected at the request of the District Agriculturists. Discussions were held with the Fisheries Biologists regarding various proposals for the construction of storage in this area and the effect on wildlife. Investigations were carried out at the request of towns in the local area.

Another occurrence worthy of mention was the Calgary Chamber of Commerce meeting in November held to present the North American Water and Power Alliance concept. This concept deals with a plan to divert waters from the northern rivers into the United States and Mexico for power, irrigation and other uses. It also proposes the building of canals to supply western water to the Great Lakes. It would require the consent of Canada for the Americans to proceed with any further investigations. Canada's approach should well be that water rising in Canada belongs to Canadians and should be first used for the benefit of Canada as a whole.

Report of the Colonization Branch

1964

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B. BEASLEY, Office Manager

INTRODUCTION

Conservation, development, and utilization of water and soils for agricultural production continued to be the objective and charge of this Branch during 1964. Services were provided to irrigation districts and to numerous other areas in the Province.

The administration, responsibilities and duties of soils and drainage investigations, the land development service, irrigation engineering services, land settlement and water rights administration, and contributions to irrigation policy in general to participation on boards, committees, and conferences and seminars maintained previous status with little change.

The Colonization Manager was appointed as Chairman of the Irrigation Policy Committee in June, 1964, to determine and advise the Minister of a good working policy for irrigation. The Committee was charged with the functions of study and co-ordination of findings of other groups and agencies working on irrigation and drainage developments. Economic and structure studies under A.R.D.A. agreements were initiated to provide basic information for this purpose. Liaison with irrigation projects, their managers, boards of trustees, and advisory committees was arranged to enhance the preparation of policy information.

LAND SETTLEMENT OF THE ST. MARY AND MILK RIVERS DEVELOPMENT AND THE BOW RIVER DEVELOPMENT

Transfer of titles during 1964 on eighteen paid-up Land Purchase Agreements increased the total number of transfers to December 1st, 1964, to seventy-one. In addition to this, thirty-eight Agreements were paid up with transfers pending at the end of the year. Four applicants were allotted land as new settlers, while twelve additional parcels were added to the holdings of established settlers.

COLONIZATION MANAGER ADVISORY COMMITTEES

The Committees met on three occasions to study land settlement conditions as related to the Colonization policies, and to advise on the disposition of lands that had become available for allotment. The Committee recommended the cancellation of four Land Purchase Agreements at their September meeting, and initiated a study at their December meeting to determine whether or not the land settlement policy should be revised to facilitate a more rapid and effective completion of the remaining land disposition.

Land Tenure

Tables I and II show the status of land tenure during 1964.

TABLE I

	S.M.R.D.		HAYS and B.R.D.	
	Veterans	Non Veterans	Veterans	Non Veterans
Total number of settlers at the end of 1963	76	98	23	66
Settlers established during 1964	0	4	0	2
Cancellations, withdrawals and /or quitclaims	1	5	0	2
Total number of settlers as at December 31, 1964	75	97	23	66
Total number of land purchase agreements	91	131	21	60
Agreements paid up and title issued	24	39	2	6
Agreements paid up and title pending	10	9	0	4
Active agreements at the end of 1964	57	82	19	50
Additional parcels of land allotted to established settlers	5	7	0	0
Tentative allotments in 1964	15 parcels		8 parcels	
Parcels of land remaining unsettled	39 (*22 C.P.)		41 (*31 C.P.)	
Number of parcels leased during 1964	48		49	
Cancellation of contracts (1951-1964)	11		4	
Withdrawals of contracts during 1964	1		0	
Quitclaims (1951-1964)	26		6	

(*C.P. refers to lands reserved for Community Pasture development)

TABLE II

	S.M.R.D.		B.R.D.	
Number of Settlers in Arrears	Land	Water Right	Land	Water Right
1 year	18	28	13	29
2 years	15	18	10	9
3 years	13	12	12	4
4 years	6	6	9	1
5 years	16	10	8	......
6 years	17	2	2	......
7 years	3	1	1	......
8 years	3	......	......	......
9 years	2	......	......	......
Total amount of arrears	$215,846.65	$22,200.24	$84,398.74	$6,798.78

ECONOMICS

The year 1964 was one of continuous activity and growth in the economics work of this Branch. The assistance of additional staff and the excellent co-operation received from both the general office and the drafting staff, resulted in a much greater amount of work being accomplished than in previous years. It is apparent that more information in connection with our settlement program was provided to the management and the settlers, as well as to many other organizations both inside and outside of the Province. Press releases also became popular as the results of our economic studies began appearing in the newspapers and farm magazines periodically during the year. The following major projects were undertaken.

Farm Business Reports — 1963

The Farm Business Reports for eighteen farmers continued for the second year of study, while eight joined for the first time. Of this eight, three farmers were private land owners.

The average farm investment for the group increased from $42,976.00 to $51,001.00 due to additional capital purchases and increases in inventory on livestock and grain, hay, etc.

Size of business also showed an increase from 370 "Productive Man Work Units" to 408 "Productive Man Work Units". This was due mainly to a higher acreage of crops having been planted, as well as an increase of animal units from 29.5 to 33.7.

The average settler received more money from the sales of farm produce during 1963; however, he spent much more than before, due to continuously increasing operating costs, such as equipment and operating expenses (up 41%, from $1,307.00 to $1,844.00) and depreciation (up 36% from $1,128.00 to $1,535.00). The following is a summary:

TABLE III

	1962	1963
Gross Operating Revenue	$10,739	$12,431
Operating Expenses	5,288	7,048
Net Farm Income	$ 5,451	$ 5,383
Labour Earnings	$ 3,524	$ 3,078

Net farm income maintained about the same level, while the labour earnings showed a drop from $3,524 to $3,078, this being due to the farm operators having to bear a higher amount of interest on investment.

The use of commercial fertilizer was up 54.5% and the crop spray up 43%.

In the overall summary it appeared that settlers were keeping up with the agricultural trend in general and, thus, were able to compete with other farming folk.

TABLE IV
FARM BUSINESS ANALYSIS, 1963

Number of Settlers in Study	26	farms
Acreage		%
Total	499	
Cultivated	368	74
Cropped	278	56
Summerfallow	90	18
Irrigable	141	28
Farm Investment		
Real Estate	$24,598.00	
Equipment	10,116.00	
Livestock	7,299.00	
Feed and Supplies	4,084.00	
Total	$46,097.00	
Animal Units	33.7	
Productive Man Work Units on Farm		
Total	408.2	(283.4 per man)
Crops	241.8	
Livestock	143.3	
Other	23.1	
Man Equivalents	1.44	
Gross Operating Revenue	$12,431.00	
Total Expenses	7,048.00	(57%)
Net Farm Income	5,383.00	(43%)
Labour Earnings	3,078.00	
Per Cent Return on Operator's Capital	5.1%	
Operator's Net Worth	$41,297.00	
Change in Net Worth During Year, + or —	+$ 3,026.00	
Net Capital Ratio:	4:1	
Turnover of Total Farm Capital	4.1	years
Total Annual Equipment Costs	$3,720.00	per cult. acre 10.11
Fixed Costs	1,876.00	per cult. acre 5.10
Operating Costs	1,844.00	per cult. acre 5.01
Gross Crop Return	26.46	per crop acre
Gross Livestock Return	155.00	per $100.00 feed
Total Cost Per A.U.	107.00	(cow-calf enterprise)

Farm Income and Expenses for Eighty-five Colonization Settlers (1962)

The farm operations of eighty-five colonization settlers in the St. Mary and Milk Rivers Development and the Bow River Development were summarized. A circular containing the district average and the settler's own operations was again sent to each individual for study. Excellent comments were received, and praisworthy statements were made by many.

The 1963 statements for ninety-seven settlers were individually analyzed during the past year. However, the summary was not available for this report (scheduled for completion in May, 1965).

The following is a summary of the 1962 analysis:—

TABLE V
SUMMARY—LAND USE, CAPITAL INVESTMENT, 1962

	S.M.R.D.			B.R.D.
	Medicine Hat, Seven Persons	Bow Island Grassy Lake	Taber	Enchant, Lomond, Travers
Farms Reported	32	19	9	17
Total Land Area (Acres)	350	438	286	826
Cropped	122	198	167	312
Grain	98	149	105	293
Specialty Crops	2	19	33	6
Hay	22	30	29	13
Pasture	84	113	37	252
Summerfallow	37	73	40	202
Waste and Other	107	54	42	60
Irrigable	109	110	119	154
% of Land Area	31%	25%	42%	19%

	S.M.R.D.			B.R.D.
	Medicine Hat, Seven Persons	Bow Island, Grassy Lake	Taber	Enchant, Lomond, Travers
Farms Reported	36	19	9	18
Total Investment	$27,627	$33,114	$32,589	$34,832
Land	$12,614	$18,137	$15,303	$16,816
%	46%	55%	47%	48%
Building	$ 1,922	$ 2,384	$ 2,386	$ 1,720
%	7%	7%	7%	5%
Working Capital	$13,091	$12,593	$14,900	$16,296
%	47%	38%	46%	47%
Machinery & Equipment	$ 5,977	$ 7,725	$ 8,727	$11,127
%	22%	23%	27%	32%
Livestock	$ 5,113	$ 3,590	$ 4,143	$ 3,072
%	18%	11%	13%	9%
Grain and Feed	$ 2,001	$ 1,278	$ 2,030	$ 2,097
%	7%	4%	6%	6%
Capital Turnover (years)	3.3	4.3	1.8	3.8

TABLE VI

FARM INCOME AND LABOUR EARNINGS STUDY, 1962

	S.M.R.D.			B.R.D.
	Medicine Hat, Seven Persons	Bow Island, Grassy Lake	Taber	Enchant, Lomond, Travers
Farms Reported	32	19	9	17
Receipts				
Crop Sales	$ 3,590	$ 4,206	$14,062	$ 5,753
Livestock Sales	2,508	1,531	2,706	1,812
Dairy & Product Sales	736	282	97	9
Poultry & Product Sales	99	13	193	2
Misc. Receipts	1,760	1,739	1,931	1,845
Total Cash Receipts	$ 8,693	$ 7,771	$18,989	$ 9,421
Less Livestock Purch.	432	66	1,043	216
Inventory Adjustment	......	......	......	......
Total Operating Revenue	$ 8,261	$ 7,705	$17,946	$ 9,205
Expenses				
Feed Purchases	$ 358	$ 367	$ 422	$ 251
Farm Mach. Expenses	1,056	1,161	2,125	1,329
Rent and Share	61	108	991	580
General Farm Expenses	477	527	719	346
Seed & Fertilizer	298	476	523	454
Annual Expenses	704	743	865	418
Custom Work & Wages	393	623	1,314	364
Operating Payments	$ 3,347	$ 4,005	$ 6,959	$ 3,742
Add Depreciation	966	1,086	1,490	1,377
Total Operating Expenses	$ 4,313	$ 5,091	$ 8,449	$ 5,119
NET FARM INCOME	3,948	2,614	9,497	4,086
Deduct Interest on Investment at 5%	$ 1,381	$ 1,656	$ 1,629	$ 1,742
Add Operator's Perquisites	201	330	280	177
LABOUR EARNINGS	$ 2,768	$ 1,288	$ 8,148	$ 2,521

Charts and Graphs for Economic Studies of St. Mary and Milk Rivers Development and Bow River Development

Charts and graphs were designed to provide a summarized illustration of various economic factors affecting colonization settlers. Seventeen plats along with commentaries were completed, and numerous copies were distributed to various organizations. Prints of illustrations for display purposes (18"x18") were also prepared, and used on six occasions during the year at agricultural short courses and exhibitions.

Miscellaneous Works

Studies of special economic conditions in certain areas of the St. Mary and Milk Rivers Development, Bow River Development, and other irrigation districts in relation to the feasibility of drainage construction, land reclamation, and land development projects were also carried out on a few occasions. Some of the studies were connected with A.R.D.A. proposals.

Assistance was given to the Farm Economics Branch in planning and co-ordinating a number of studies carried on by their staff in the irrigated area.

WATER RIGHTS

Table number 7 shows the status of water right agreements, while Table number 8 shows the arrears of water right payments. Water rights rate enforcement proceedings resulted in two parcels of land being held in the name of the Colonization Manager and subject to sale. There have not been any lands sold under rate enforcement procedures in the history of the Bow River Development and the St. Mary and Milk Rivers Development to the end of 1964.

TABLE VII
WATER RIGHT AGREEMENTS

	S.M.R.D.	B.R.D.
Agreements Signed	1,943	444
Active Agreements	1,154	293
Inactive Agreements	44	68
Paid Up Agreements	552	28
Agreements Deferred by Minister's Orders	26	......
Number Classified Non-Irrigable	167	55

TABLE VIII
ARREARS OF WATER RIGHT PAYMENTS

S.M.R.D.

No. of Farmers in Arrears		Year	Amount
1 year	190	1964	$52,793.76
2 years	185	1963	28,332.14
3 years	6	1962	1,077.04
4 years	2	1961	522.77
5 years	3	1960	401.95
6 years	1	1959	65.00
Amount of Arrears Owing			$83,192.66

B.R.D.

No. of Farmers in Arrears		Year	Amount
1 year	27	1964	$ 9,514.20
2 years	25	1963	5,251.37
3 years	1	1962	133.88
Amount of Arrears Owing			$14,899.45

Revenue

Table IX shows the collections from land sales and water right agreements. The Land Sale Agreements concern only Colonization settlers whereas water right agreements cover all of the irrigable lands in the two projects.

TABLE IX

COLLECTIONS ON LAND SALE AGREEMENTS AND WATER AGREEMENTS

S.M.R.D.

	1961	1962	1963	1964
Land Sales	$ 41,000.00	$ 62,000.00	$ 42,000.00	$ 74,000.00
Water Right	124,000.00	119,000.00	127,000.00	113,000.00

B.R.D.

	1961	1962	1963	1964
Land Sales	$ 12,000.00	$ 27,000.00	$ 16,000.00	$ 13,000.00
Water Right	8,000.00	11,000.00	9,000.00	16,000.00

Irrigation Planning Board

The Colonization Manager, as a member, attended seven meetings and hearings of the Board, and presented feasibility data on soils and topography for five proposed irrigation schemes. Feasibility investigations were initiated on three other proposals.

Irrigation Policy Committee

The Committee made preparatory plans for co-ordination and advice on economic aspects, physical works, and administration of irrigation projects, and for the accumulation and communication of such information with irrigation officials. A review of existing legislation and the effectiveness of project policy under the legislation was initiated with a view to advising the Honourable Minister of Agriculture on the effectiveness of anticipated changes in proposed policy.

Drainage Committee

The Colonization Manager, as Chairman, called six meetings during 1964. Investigational reports, engineering designs, cost estimates, and consequent operation and maintenance were the main considerations given to recommendations which resulted in the construction of 161,000 feet of open drains, 30,000 feet of tile drains, 90,000 feet of canal lining, 10,000 feet of reconstructed canals, and 9,000 feet of canal deepening. Problem areas in the St. Mary and Milk Rivers Development, Taber Irrigation District, Lethbridge Northern Irrigation District, Raymond and Magrath Irrigation Districts were investigated with reports going to respective management. Thirty-five damage claims were processed for the 1964 crop year. Four claims for the 1963 crop year were placed before the Public Utilities Board for settlement. Payment of the claims was made from appropriations of the Water Resources Branch.

The terms of reference of the Drainage Committee were extended to include all irrigation districts in Alberta. More specifically, the main functions are now outlined as follows:

The Committee shall function as a consulting and advisory group to provincial and local governments, and Irrigation and Drainage Projects on:

(a) Local and regional groundwater; its detrimental or beneficial use.

(b) All types of drainage and land reclamation projects.

(c) Irrigation project development (within the confines of drainage, groundwater, and soils).

(d) A.R.D.A. submissions involving drainage, reclamation and irrigation development.

(e) Litigations involving water and land use or misuse.

Discussion within the Drainage Committee lead to surface drainage works agreements between a number of Irrigation Projects, Counties, or Municipal Districts and the Minister of Agriculture.

The existing policy wherein the government paid seepage damage claims on the St. Mary and Milk Rivers Development Eastern Division and the Bow River Development West Block was rescinded transferring the responsibility to the respective districts for 1965 and thereafter.

Land Classification

Detailed investigation to determine the feasibility of irrigating land proposed for irrigation was provided to projects and farmers throughout the Province. (See Tables X and XII.)

Land Levelling Trust Account

Revenue from the earthmoving and farming equipment was $82,437.66, the operating expenses were $63,882.77, leaving a surplus from the year's operation of $18,554.89. Comparable figures for 1963 were revenue — $75,223.17, expenses — $54,000.00, surplus — $21,223.17.

Although loss of time due to repairs was not a serious problem, the cost of repairs to transmissions was considerable. Replacement transmissions have been modified to overcome future failure.

The depreciated value of the equipment at the beginning of the season was $79,900.92, and surplus funds on hand were $40,931.01, which showed growth from the capital grant of $78,079.43. The Trust Account has been in operation since 1951.

Agricultural Rehabilitation and Development Act

Branch services provided by the Soils and Drainage, Land Development, and Irrigation Engineering Divisions were supported under the A.R.D.A. agreement "Irrigated Farm Development, Investigations, and Designs" as approved in 1963.

Extension

Educational and promotional presentations, displays, demonstrations, tours, and lectures were continued as in past years as a public service. Educational aid was organized through the services of the Extension Branch. The co-ordination, liaison, and working relations exhibited by the Extension staff were very much appreciated.

Educational Leave

D. G. Harrington was on leave of absence with three-quarters salary to May 1, 1964, at the University of British Columbia, in pursuit of studies leading to a Master's degree.

L. J. McCracken was granted leave of absence with three-quarters salary beginning October 1, 1964, for a year to pursue studies at the California State University, Davis, California leading to a Master of Science degree.

N. S. Thomson was granted leave of absence with three-quarters salary beginning September 15, 1964, for a period of one year, to pursue graduate studies leading to a Master of Agriculture degree at Colorado State University, Fort Collins, Colorado.

L. D. M. Sadler was awarded a Master of Science degree in Soils and Irrigation from Utah State University in June, 1964.

SOILS AND DRAINAGE DIVISION

Introduction

The increase in demand for services pertaining to soil classification, soil reclamation, drainage investigations, and design continued in 1964. In addition to the preliminary soils and groundwater investigations on the Raymond-Magrath, Lethbridge-Coaldale and Lethbridge Northern Irrigation Districts, detailed investigations have also been carried out in these areas with reports and recommendations going to the management concerned. A number of detailed investigations in the Western Irrigation District and the Eastern Irrigation District pertained to canal seepage, drainage, soil classification, and land reclamation. Completed reports in these areas were forwarded to the managers of the respective projects.

A rapidly expanding interest by individual operators in the field of groundwater development for domestic and irrigation use necessitated a direct liaison between the Groundwater Division of the Research Council and ourselves. Based on information obtained in this manner, some preliminary drilling was carried out to ascertain the accuracy of information available. In the cases in which this was done, results were very encouraging, in that shallow supplies of domestic water were found on several farm locations. Such drilling was of a limited nature only since equipment had to be taken from soils and drainage investigations to facilitate these explorations.

The purchase of a new deep drill greatly added to the scope of field investigations during 1964. Deeper explorations were possible to check out continuity of residual strata and groundwater flow patterns. Secondly, extent of detail possible was increased, as well as number of total projects undertaken. New equipment made possible the extension of services to areas further removed from headquarters.

A tour organized in the fall of 1964 in areas of the St. Mary and Milk Rivers Development and Taber Irrigation District was attended by approximately forty irrigation district management and operations personnel, as well as various advisory boards, to study the effective measures being taken to control seepage and reclaim salted land. The response to the tour was very encouraging and indicated a desire on the part of the irrigation districts to learn more about remedial measures and to undertake such measures as are within their budgetary means.

The use of services pertaining to irrigation water and soil quality is increasing, with requests coming from almost every region in the Province. In some cases areas of anticipated development have been visited by professional personnel from the Soils and Drainage Division, and full-scale detailed reports written as a result of the visit and investigation carried out in the area. In many other cases, submission of soils and samples to our headquarters resulted in reports pertaining to quality and feasibility of development. Local groundwater and fluctuating stream flow were considered for use in irrigation development in several areas.

In all of the above considerations, facilities and staff were used to full efficiency but were unable to keep up with the demand, particularly in the fields of canal seepage, and deep drainage for land reclamation.

Drainage and Groundwater Investigations

1. Shallow groundwater as related to drainage problems.

Investigations into groundwater movement and levels being associated with canal seepage and localized groundwater buildup; these two problems received major allocation of time. Water table records, hydrostatic pressure records and drainage effluent analysis were important data for drainage design and recommendations.

A program of cataloging shallow groundwater supplies in the irrigated districts was undertaken in co-operation with the Alberta Research Council. In addition to groundwater installations already in use, two water table wells with automatic recorders were installed to provide information on seasonal changes in groundwater levels and the influence of climate and changing atmospheric pressure on the water table.

Readings on over forty installations in the Eastern Irrigation District were supplied to the Department of Northern Affairs at Calgary for use in a study of return flows from the irrigation district.

2. Deep formations as related to recharge aquifers.

An attempt was made to find a suitable aquifer in the Stirling area to outlet drainage water. Six holes were drilled, under contract, to an average depth of 140 feet. Formations encountered were not suitable for large amounts of recharge. Had the necessary depth of gravel formation been encountered, cost of providing outlet drainage for the Raymond Irrigation District would have been greatly reduced.

Surface Drainage Investigations

Surface drainage as connected with surplus irrigation water remained the main consideration. Projects involving detailed drain construction on a farm basis, however, increased in importance. The Division was also involved in A.R.D.A. submissions with surface water and its effect on local groundwater; in particular, the Battersea Drain in the Picture Butte area of the Lethbridge Northern Irrigation District.

Land Reclamation

A program of recording salt movement on salted land recently drained was continued in 1964. Supervision and advice on cropping and irrigation of these lands were given to the operators.

A program of irrigation and cropping of solonetzic soil in the Enchant district was continued in 1964, in co-operation with the Dominion Research Station in Lethbridge.

A.R.D.A.

Information and assistance were given to three local A.R.D.A. committees in preparing their submissions. The contribution included extent and area of damage, condition of soils, groundwater level and general methods of reclamation as well as sufficient reference to farm economics to justify the proposals. The ensuing reports represented the basis of proposed submissions totalling close to one and one-half million dollars.

Soil Investigations for Land Classification

Soil logging and testing continued on a number of proposed irrigation tracts. These consisted of field inspection and chemical tests to determine presence of total salts and sodium. Hydraulic conductivity data obtained by field tests together with chemical data was used to rate soils irrigability.

Soils reclassification and initial classification was carried out on numerous parcels of land within and bordering present irrigated areas. Several areas were investigated in conjunction with Irrigated Community Pasture development.

Rating of land within the Eastern Irrigation District as to extent and degree of salinization was initiated at the request of the project.

Water Supply and Storage Studies

Thirty sites were investigated for water storage suitability. Interpretation of the results by the farmers involved was facilitated by the use of dugout investigation forms.

An increase in the use of professional services and technical assistance in the area of groundwater use for domestic supply increased in all areas. Interpretation of Research Council reports and investigations for farmers and District Agriculturists was extended to dryland areas in southern Alberta.

Soils and Water Laboratory

Routine analyses of soils and water were processed at an accelerated rate due to the purchase of new equipment and an increase in staff. In addition to this, analyses for the measurement of soil gypsum, important in the reclamation of sodic soils, were initiated. Soil mechanics equipment was purchased for the purpose of obtaining data on the physical properties of soils as a construction material to tie in with drainage design, canal relocation and drainage construction.

Design Criteria and Recommendations

Recommendations and designs incorporated in final reports continued to be based on technical information obtained by investigations in the field and office. Open and closed drainage, canal relocation, seepage control and groundwater development and control continued to make up the majority of investigations and designs.

The general disciplines of soil chemistry, soil physics, geology, fluid mechanics, air photo interpretation, groundwater analysis and engineering were the basis of reports where applicable. Studies of all contributing factors were carried out by field, office and laboratory technical employees supervised by professional staff.

The extent of detailed investigation necessary to arrive at decisions varied with circumstances. Whenever possible, decisions based on extensive experience were made as a result of inspection only, so that technical staff and equipment could be used on more critical problems.

Due to an increasing interest in shallow domestic groundwater development, expansion of design services was necessary to provide advice on well screens and sand points. Co-operation and liaison with private drillers, farmers and suppliers was established to the fullest practical extent to insure success.

The Division co-operated with representatives of the Portland Cement Association and the Water Resources Branch in preliminary explorations on the use of concrete in canal lining for seepage control and reduced maintenance.

The continuing farm development program pointed to a need for more emphasis on soil reclamation. Cultural programs and special water application practices accompanied by chemical amendments were under study.

Of particular note was the procedure of using drilling equipment in the construction of artesian relief holes in the bed of shallow interceptor drains. This method of construction was recommended where lateral groundwater movement was confined by horizontally bedded strata such as shale, sandstone or coal.

TABLE X
SOILS AND DRAINAGE DIVISION STATISTICAL SUMMARY

A. Professional

I—SOILS INVESTIGATIONS FOR IRRIGABLE LAND CLASSIFICATION:	
1. Major Investigations	
(Involving technical field work)	5
Parcels (160 acres)	238

2. Minor Investigations (Involving technical field work on 160 acre parcels or less)	164
II—DRAINAGE INVESTIGATIONS:	
1. Major Investigations (Involving technical field work)	58
Parcels	210
2. Minor Investigations (Field Inspections only)	125
III—MISCELLANEOUS INVESTIGATIONS: (Involving technical field work)	
1. Farm Storage Reservoirs	30
2. Land Development	31
3. Ground Water Development	17
IV—INSPECTIONS:	
1. Field (Man Days)	314
2. Farm Visits	123
3. Office and laboratory	325
V—REPORTS:	
1. Soils	230
2. Drainage	182
3. Groundwater	17
4. Engineering (general)	5
5. Laboratory analysis (soil and water)	35
6. Miscellaneous	40
VI—EXTENSION WORK:	
1. Number of programs giving talks or demonstrations	9
Attendance	650
2. TV appearances	5
3. Number of bulletins and newsletters issued	900
VII—PROFESSIONAL PARTICIPATION BY GIVING PAPERS:	
1. Seminars	5
2. Conferences	1
VIII—MEETINGS ATTENDED	30
IX—IN SERVICE TRAINING (Man Days):	12

B. Technical

(Work contributing to functions and reports of professional staff)

I—FIELD:	
1. Soil borings—Sterling drill	2,678
2. Soil borings—Mobile drill	1,286
3. Soil borings—Giddings drill	2,177
4. Soil borings—manually	52
5. Field analysis for hydraulic conductivity	
(a) Soil Classification	301
(b) Drainage Investigations	6
(c) Groundwater Investigations	1
6. Groundwater Installations	
(a) Existing to November 30, 1963	1,211
(b) New to November 30, 1964	729
(c) Readings (measuring depth to water and hydrostatic pressure)	16,335
7. Engineering surveys (Man days)	468
8. Soil and water samples taken in the field	12,269
9. Number of automatic groundwater recorders (total installed to date)	3
10. Number of samples for fertility analysis by A.S.A.F.T.L.	33
II—LABORATORY:	
1. Soils and water samples analyzed for salinity, SAR, etc.	11,924
2. Number of mechanical analyses	152
3. Hydraulic conductivity tests	36
4. Analyses for gypsum requirement	178
III—OFFICE:	
Basin—wide ground water table reports	7
IV—MISCELLANEOUS WORK (Man Days):	108
(Includes painting, water table well covers, cutting water table and piezometer pipe, and maintenance and repairs of field equipment	

C. Construction and Development Work

Work undertaken in 1964 by Government Agencies, Irrigation Districts and private development as a direct result of investigations or in which the Division played a major role.

		Cost
1.	Irrigation Project Development	$ 80,000.00
2.	Canal Lining (89,900 feet)	134,400.00
3.	Tile Drainage (29,780 feet)	88,300.00
4.	Open Drainage (160,600 feet)	139,400.00
5.	Canal Relocation (9,620 feet)	13,500.00
6.	Canal Deepening (9,400 feet)	10,300.00
7.	Groundwater Development for Irrigation Purposes	60,000.00
8.	Farm Storage Reservoirs (30)	10,500.00

D. A.R.D.A. Proposals Approved

Battersea Drainage System, Lethbridge Northern Irrigation District	80,000.00

IRRIGATION ENGINEERING DIVISION

Design Criteria "Irrigation Guide"

The evaluation of irrigation methods was concentrated in the Taber District with some follow-up studies carried out in the Lethbridge district in response to requests by the District Irrigationist and district farmers. The Guide for the western section of the southern irrigation area was completed and will be included with the full guide for all irrigation districts in Alberta. Numerous water-holding capacities of soils were determined to provide this necessary information for use in the Guide.

Irrigation Gauge

Evaporation and precipitation data was gathered for each week of the growing season and correlated to crop use to indicate to water users the time and quantity of water to apply at each irrigation. Improvements were made to Gauge signs sponsored by the Canadian Sugar Factories Ltd. and the Department of Agriculture to provide accurate and appealing signs at thirteen reporting stations. With the co-operation of Canadian Sugar Factories personnel and Agricultural Department representatives, interest in this Service increased markedly during the 1964 growing season. The subscription service gained in appeal and was supplemented by existing distribution of information through newspapers, radio, and television.

Large numbers of bulk density and water-holding capacity samples were taken to provide the irrigation farmer with the information in relation to the amount of water he should allow his crop to use between irrigations and the amount of water that he should return to storage with each irrigation applied.

Water Control Structures

Irrigation control structures were tested and assessed for use on irrigated farms in Alberta. Preliminary studies were carried out on polyethylene tubing for a flexible means of transmitting and distributing water on undeveloped terrain. Initial tests were conducted on a self-propelled irrigation dam, trade name "Irrigator", as a means of diverting water on to the land surface and reducing labour requirements, and as a means of reducing structure costs for developed and undeveloped lands.

Gated Pipe (aluminum) was evaluated to determine its ability to deliver the proper amounts of water to soils and provide a guide for future installations in irrigation projects or in private installations adjacent to water sources throughout the Province.

Sprinkler Irrigation

Sprinkler irrigation systems were evaluated to determine their efficiencies. Numerous requests for sprinkler designs and evaluations were received from farm operators in central and northern Alberta. Recommendations were made to correct poor designs or management practices. Evaluation tests were made of a self-propelled sprinkler system new to the irrigation districts of Alberta to provide future prospective buyers with information relative to the value of this system. Counselling of prospective purchasers assisted them to select systems to suit their farm lands.

During the summer of 1964, the Sprinkler Irrigation Association was formed marking a milestone in the desire of sprinkler dealers to present a unified effort on behalf of themselves and people desiring proper irrigation systems. The main purpose of this Association is to promote sound sprinkler use and management in soils and water conservation practices.

TABLE XI

IRRIGATION DIVISION
STATISTICAL SUMMARY

I—**Irrigation Guide:**	
1. Number of border irrigation system evaluations	28
2. Number of furrow irrigation system evaluations	8
3. Number of soil water infiltration tests	152
4. Bulk density studies:	
Samples	1,661
Tests	335
5. Number of sprinkler system evaluation tests	8
II—**Irrigation Gauge:**	
1. Number of district recording stations	13
2. Number of weekly records compiled	208
3. Soil moisture tests:	
Sites	580
Samples	2,500
4. Water-holding capacity:	
Sites	348
Samples	1,650
Analyses	350
III—**Water Control Structure Tests:**	10
IV—**Inspections:**	
1. Field	74
2. Office	18
V—**Reports:**	
1. Number of major reports completed	11
VI—**Extension:**	
1. Meetings, Demonstrations, Field Days	43
2. Television programs	14
3. Written releases	15
4. Office interviews	36
5. Circulars distributed	1,140

LAND DEVELOPMENT SERVICE

Land Levelling

Land levelling operations had a slow start in the spring of 1964 due to unfavorable weather conditons. A total of 6.61" of precipitation was received during the months of April and May compared to the 30 year average of 3.41", and therefore land levelling construction was seriously curtailed. All Districts except Brooks were slightly below the 1963 acreages levelled, which made significant gains. The total acreage levelled in 1964 was 12,866 compared to 13,162 in 1963. Figure I illustrates the yearly increase in land development since 1956.

Farm Irrigation Systems

District Irrigationists continued to emphasize the importance of water control following land levelling by making available advice and technical service to aid and promote the installation of water control structures, border dykes, and corrugations. Significant gains were made in that 800 acres were corrugated and 1,400 acres border dyked in 1964.

A total of 417 land levelling reports were issued to farmers and Irrigation Districts. Reports gave irrigation system layouts, application rates and cultural recommendations.

Investigation and promotion of the conservation of soil moisture by conservation practices such as contour strip cropping, terracing, and contour furrows was continued in 1964 and one farmer in the Foremost area changed to contour farming on one quarter. The work on this programme was in general one of promotion and education.

Topography Analysis for Land Classification

Lands were appraised as to their suitability for irrigation and reports submitted to the Irrigation District concerned. Recommendations as to proper land use, methods of irrigation and conservation practices were included. 429 parcels were classified in 1964.

Extension

Planning of extension activities in co-operation with District Agriculturists was more effective in 1964 both in terms of educational value and the number of people contacted. Irrigation Schools of a one day duration were effective. Field demonstrations generally changed from a field location type to a tour of farms which demonstrated the use of efficient methods of irrigation. It was also found that demonstrations that were advertised in a challenging way did not need to be given a great deal of notice. Last year a demonstration was held on the farm of Mr. Willard Penner where it was shown that he could irrigate up to 80 acres per day using a border dyke system. One day's notice was given and 40 farmers turned out even though the weather was not ideal.

In view of the slower rate of irrigation farm development in the West Block of the Bow River Development compared to the Eastern Division of the St. Mary and Milk Rivers Development, a meeting was held at Enchant with people from the farm, project management, extension, and development to discuss the problems and seek solutions. Four areas of improvement were suggested:

(1) increased hay and pasture acreage (2) more intensive management of levelled areas, (3) increased use of sprinklers on rougher topography, and (4) greater use of extension facilities such as Farm and Home Associations.

Lethbridge Drafting Office

The statistical summary indicates the large volume and service provided to the Branch in 1964. The operation of the drafting room under the direction of Mr. Noreika was productive and efficient in providing service to Branch personnel.

Figure 1

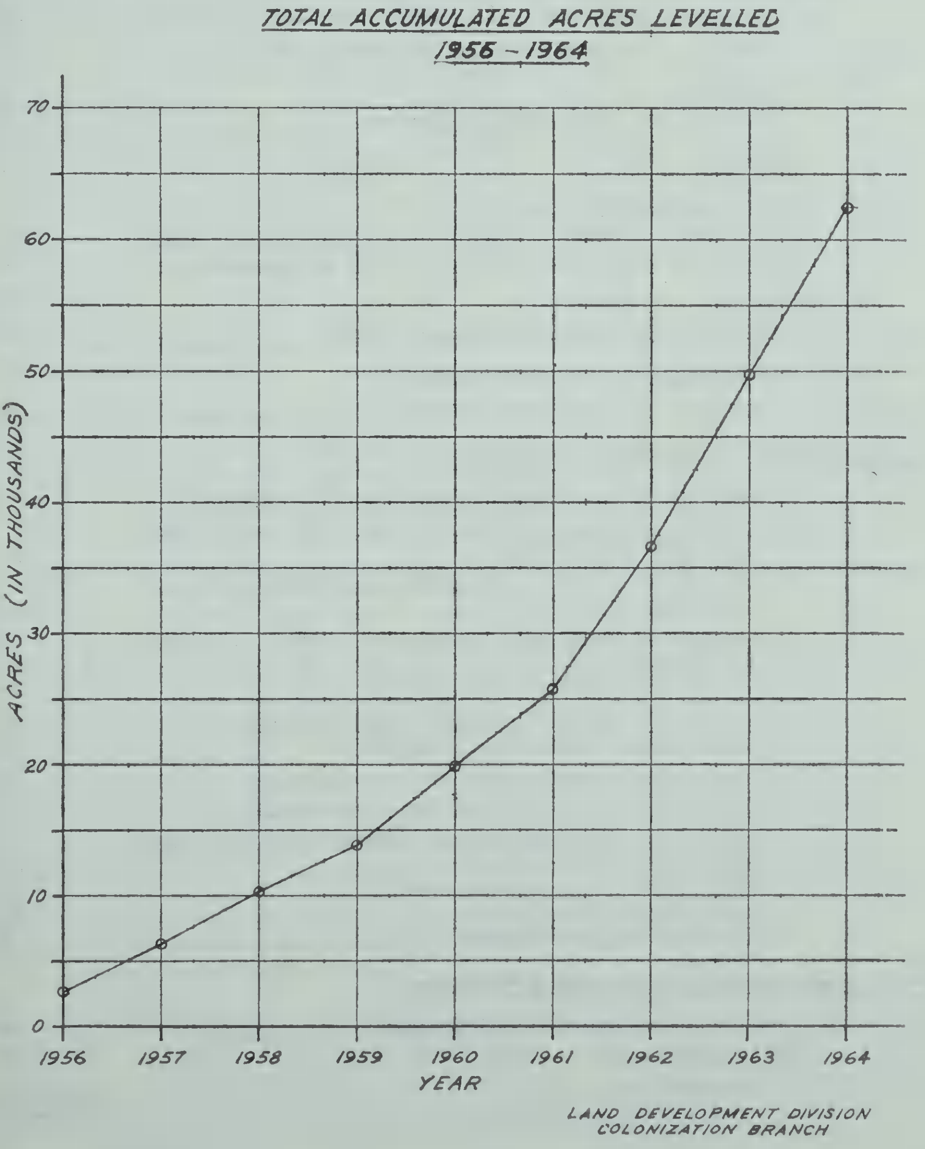

TABLE XII

LAND DEVELOPMENT DIVISION

STATISTICAL SUMMARY, 1964

A. DISTRICT IRRIGATIONISTS

I—Land Levelling

1.	Number of applications received (D1 and D2)	357
2.	Total acreage of Engineering Surveys	24,501
3.	Number of parcels levelled	420
4.	Number of completed designs	528
5.	Total acreage land levelled	12,866
6.	Average cost per acre	$56.00
7.	Number of land levelling reports prepared (L1)	417

II—Farm Irrigation Systems

1.	Number of water control structures installed as per specifications	255
2.	Number of acres border dyked	1,400
3.	Number of acres corrugated	800

III—Topography Analysis for Land Classification

1.	Number of quarter sections investigated	429
2.	Number of topography reports prepared (S2)	128

IV—Inspections

1.	Farm visits and field inspections	1,916

V—**Reports** (Major)	10

VI—Extension Participation

1.	Meetings, Field Days, Demonstrations, Short Courses, Irrigation Schools, and TV appearances	45

VII—Miscellaneous Surveys

1.	Other than land development	151

VIII—Administrative and Office Duties

1.	Number of office interviews	2,292

B. LETHBRIDGE DRAFTING SECTION

1.	Number of land classification linens completed	2
2.	Number of tracings corrected for R/W, land levelling, and reclassification	323
3.	Number of land classification report diagrams completed (S3)	128
4.	Number of drainage investigation plans and profiles prepared	104
5.	Number of general location plans	14
6.	Number of display posters, charts, overhead projector plates, and stencil diagrams	134
7.	Number of water control structure plans	27
8.	Miscellaneous plans, sketches, and lettering	257
9.	Number of plans issued to farmers and agencies:	
	Land levelling reports—L1	834
	Water control structure plans	300
	Land classification prints	812
	Bulletins and newsletters	90

C. LAND LEVELLING TRUST ACCOUNT

1.	Number of parcels land levelled	46
2.	Acreage land levelled	1,195
3.	Revenue from all jobs	$82,437.66
4.	Expense less depreciation	$63,882.77

LETHBRIDGE NORTHERN COLONIZATION MANAGER

P. M. SAUDER —L.N.I.D. Colonization Manager

The land settlement portion of the Colonization Manager's business was completed in the year 1961.

Since 1954, financial assistance, given by way of loans to water users, has been limited to loans for sugar beet labour and hauling.

The total amount loaned in 1964 was $207,592.20, as compared with $208,046.83 in 1963 and $226,754.16 in 1962. The Secretary-Treasurer of the Lethbridge Northern Irrigation District looked after the office work in connection with the loans and the District bore the total expense of this service. The money used to make the loans was borrowed from the Treasury Branch in Lethbridge.

The following schedule gives statistics for sugar beet crops on the Lethbridge Northern Irrigation District for the years 1958 to 1964 inclusive:

Year	No. of Growers	Acres Harvested	Tons Harvested	Tons per Acre	Sugar Content	Total Price per Ton
1958	487	13,132	195,606	14.89	16.0%	15.32
1959	479	12,029	146,067	12.14	15.8%	15.51
1960	462	12,918	155,976	12.07	16.3%	14.84
1961	458	12,298	147,666	12.01	15.3%	13.73‡
1962	408	11,386	134,674	11.83	17.2%	21.26
1963	383	10,566	146,423	13.86	15.7%	17.75
1964	399	11,112	125,954	11.33	16.5%	*

Note:

‡includes the subsidy.

*initial payment was $10.00. Total price will not be known until all of the sugar is sold.

Sugar beets was, of course, the main specialized irrigation crop on the district and has done more to help the water users to become successful farmers than any other crop. Other crops such as potatoes, peas, turnips, carrots, cabbage, beans, parsnips, strawberries, cucumbers, corn, mustard, gladioli, sunflowers and flax are also grown but we have no definite reports on these crops.

Feeding and marketing of livestock and poultry were again important and profitable branches of farming on the Lethbridge Northern Irrigation District.

Report of the Agricultural Extension Branch

HEADQUARTERS

S. S. GRAHAM, B.Sc., P.Ag., Director
L. W. RASMUSSON, B.S.A., M.Ed., P.Ag., Supervisor of District Agriculturists
C. A. CHESHIRE, B.E., P.Ag., Supervisor of District Agriculturists
Mrs. V. G. MacDONALD, B.Sc., Supervisor of Home Economics Division
Miss PATRICIA MASCALUK, B.Sc., Home Management Specialist
Mrs. NANCY ZAVEDIUK, B.Sc., Extension Clothing Specialist
Miss DIANNE HAMMER, B.I.D., Home Designing Specialist
J. L. REID, B.Sc., B.S.A., M.Sc., P.Ag., Senior Extension Engineer
ANTON PROTZ, B.S.A., B.E., Assistant Extension Engineer
C. L. USHER, B.Sc., P.Ag., Supervisor, 4-H Division
Miss GLENNA ROBINS, B.Sc., Associate Supervisor 4-H Clubs
ROBERT GILMOUR, B.S.A., Associate Supervisor 4-H Clubs
ARNOLD MALONE, Assistant Supervisor 4-H Clubs
WARREN WISMER, B.S.A., Supervisor, Radio & Information Division
JOHN ANDREW, B.Sc., Senior Commentator, Radio & Information Division
JOHN LOCKHART, B.Sc., Commentator, Radio & Information Division
Miss DIANA RODNEY, B.A., Information Officer, Radio & Information Division

REGIONAL OFFICES

Calgary—D. E. Darby, B.E., Regional Extension Engineer.
Grande Prairie—R. S. Forrest, B.E., Regional Extension Engineer

Office and Agriculturist	**Home Economist**
Athabasca	
G. L. Godel, B.S.A., M.Sc., P.Ag.	
L. A. Blair, B.S.A. (Assistant)	
Barrhead	
C. C. Robinson, B.Sc., P.Ag.	
Berwyn	
G. R. McNaughton, B.Sc., P.Ag.	Mrs. N. Brunet, B.Sc.
Bonnyville	
L. Gareau, B.S.A., M.Sc., P.Ag.	
Brooks	
I. Lapp, B.Sc., P.Ag.	Mrs. N. J. Gray, B.Sc.
Calgary	
A. W. Beattie, B.Sc., P.Ag.	Mrs. I. Leavitt, B.Sc.
A. Reimer, B.S.A. (Assistant)	
Camrose	
L. D. Williams, B.Sc., P.Ag.	Miss M. L. Phillips, B.H.Ec.
R. E. Grattidge, B.Sc. (Assistant)	
Cardston	
D. L. Steed, B.Sc., P.Ag.	
Claresholm	
J. D. Jantzie, B.Sc., P.Ag.	Miss M. McLachlan, B.H.Ec.
Coronation	
W. Dietz, B.Sc., P.Ag.	
Drumheller	
S. W. Pettem, B.S.A., P.Ag.	
Edmonton, North	
J. M. Fontaine, B.Sc., P.Ag.	Miss M. Oke, B.Sc.
A. F. Belyea, B.Sc., P.Ag. (Associate)	
Edmonton, South	
P. Jamieson, B.Sc., P.Ag.	Mrs. M. Atkinson, B.Sc.
Fairview	
G. C. Boulet, B.Sc., P.Ag.	
Grande Prairie	
N. G. Miller, B.Sc., P.Ag.	Mrs. P. Sheehan, B.Sc.
Hanna	
D. R. Macpherson, B.Sc., P.Ag.	Mrs. M. Cox, B.Sc.

Office and Agriculturist	**Home Economist**
High Prairie	
E. Dobko, B.Sc., P.Ag.	
High River	
C. E. Yauch, B.Sc., P.Ag.	
Lac La Biche	
W. S. Morrison, B.Sc.	
Lacombe	
W. L. McNary, B.Sc., P.Ag.	Miss M. Hobson, B.H.Ec.
A. J. Wiebe, B.S.A. (Associate)	
Lamont	
G. W. Shewchuk, B.Sc., P.Ag.	
Leduc	
J. R. Gylander, B.Sc., P.Ag.	
B. Shaw, B.Sc. (Assistant)	
Lethbridge	
R. M. Trimmer, B.Sc., P.Ag.	Miss E. Bartman, B.Sc.
M. S. Kuryvial, B.Sc., M.Sc., P.Ag. (Associate)	
Mayerthorpe	
D. I. Peters, B.Sc., P.Ag.	
Medicine Hat	
J. L. Anderson, B.Sc., P.Ag.	
R. A. Skaien, B.S.A. (Assistant)	
Olds	
H. J. Fulcher, B.Sc.	Miss P. Westman, B.H.Ec.
L. Welsh, B.Sc., P.Ag. (Associate)	
Ponoka	
J. L. Kerns, B.Sc., P.Ag.	
Red Deer	
R. D. Price, B.Sc., P.Ag.	Miss E. Davies, B.Sc.
W. Hooge, B.S.A. (Assistant)	
Rocky Mountain House	
G. A. Ross, B.Sc., P.Ag.	
Ryley	
S. C. Powers, B.Sc., P.Ag.	
Sedgewick	
A. E. Edwards, B.Sc., P.Ag.	
Smoky Lake	
W. C. Yule, B.Sc.	
Spirit River	
F. Graves, B.Sc., M.Sc., P.Ag.	
Stettler	
E. W. Walker, B.Sc., P.Ag.	Mrs. H. Moore, B.H.Ec.
Stony Plain	
E. C. Lowe, B.Sc.	
M. Rudakewich, B.Sc. (Assistant)	
Strathmore	
K. H. Walker, B.Sc., M.Sc., P.Ag.	
St. Paul	
J. B. Milne, B.Sc., P.Ag.	Miss E. Zawadiuk, B.Sc.
Taber	
J. G. Calpas, B.Sc., P.Ag.	
E. L. Treffry, B.Sc., P.Ag. (Associate)	
Thorhild	
F. Strashok, B.Sc.	
Two Hills	
W. J. Dent, B.Sc.	Miss J. Hilton, B.Sc.
Vegreville	
N. A. Chomik, B.Sc., P.Ag.	Miss D. Skripitsky, B.Sc.
Vermilion	
H. M. Douglas, B.Sc., P.Ag.	
D. E. Berdine, B.Sc. (Associate)	
Vulcan	
C. J. Roth, B.Sc., P.Ag.	
Wainwright	
J. S. Duncan, B.Sc., P.Ag.	Miss C. Currie, B.Sc.
Westlock	
W. A. Ross, B.Sc., P.Ag.	Mrs. B. McCutcheon, B.Ed.
Wetaskiwin	
W. C. Proctor, B.Sc., M.Sc.	Miss S. Myers, B.H.Ec.

PROMOTIONS AND TRANSFERS

D. E. Darby —Assistant Extension Engineer, Edmonton, to Regional Extension Engineer, Calgary.
M. S. Kuryvial —Assistant District Agriculturist, Stony Plain, to Associate District Agriculturist, Stony Plain.
M. S. Kuryvial —Associate District Agriculturist, Stony Plain, to Associate District Agriculturist, Lethbridge.
M. A. Cameron —Associate District Agriculturist, Medicine Hat, to Farm Economics Branch.
G. B. Parlby —Associate District Agriculturist, Red Deer, to Farm Economics Branch.
A. R. Jones —District Agriculturist, Taber, to Farm Economics Branch.
J. G. Calpas —Associate District Agriculturist, Taber, to District Agriculturist, Taber.
E. L. Treffry —Assistant District Agriculturist, Lethbridge, to Associate District Agriculturist, Lethbridge.
E. L. Treffry —Associate District Agriculturist, Lethbridge, to Associate District Agriculturist, Taber.
D. E. Berdine —Assistant District Agriculturist, Vermilion, to Associate District Agriculturist, Vermilion.
G. C. Boulet —Assistant District Agriculturist, Berwyn, to Associate District Agriculturist, Berwyn.
G. C. Boulet —Associate District Agriculturist, Berwyn, to District Agriculturist, Fairview.
F. Strashok —District Agriculturist, Lac La Biche, to District Agriculturist, Thorhild.
M. H. Jaque —District Agriculturist Grande Prairie, to Agricultural and Vocational College, Fairview.
N. G. Miller —Associate District Agriculturist, Grande Prairie, to District Agriculturist, Grande Prairie.
Miss D. Skripitsky—District Home Economist at Large, to District Home Economist, Vegreville (temporary).
V. T. Janssen —Associate Supervisor 4-H Clubs, to Farm Economics Branch.
Miss G. Robins —Assistant Supervisor 4-H Clubs, to Associate Supervisor 4-H Clubs.
John Andrew —Commentator, Radio and Information Division, to Senior Commentator, Radio and Information Division.
Warren Wismer —Senior Commentator, Radio and Information Division, to Supervisor, Radio and Information Division.

APPPOINTMENTS

R. S. Forrest —Regional Extension Engineer, Grande Prairie.
A. Protz —Assistant Extension Engineer, Edmonton.
G. W. Law —Winter Assistant Extension Engineer, Edmonton.
L. A. Blair —Assistant District Agriculturist, Athabasca.
A. Reimer —Assistant District Agriculturist, Calgary.
B. Shaw —Assistant District Agriculturist, Leduc.
R. A. Skaien —Assistant District Agriculturist, Medicine Hat.
W. Hooge —Assistant District Agriculturist, Red Deer.
M. Rudakewich —Assistant District Agriculturist, Stony Plain.
W. S. Morrison —District Agriculturist, Lac La Biche.
Miss C. Currie —District Home Economist, Wainwright.
Miss Janet Hilton —District Home Economist, Two Hills.
Miss M. Hobson —District Home Economist, Lacombe.
Miss M. Oke —District Home Economist, (North) Edmonton.
Miss D. Skripitsky —District Home Economist at Large.
Arnold Malone —Assistant Supervisor 4-H Clubs.
Robert Gilmour —Associate Supervisor 4-H Clubs.
John Lockhart —Commentator, Radio and Information Division.

RESIGNATIONS

J. W. Ulrich —Regional Extension Engineer, Calgary.
R. C. Gordon —Associate District Agriculturist, Athabasca.
G. C. Boulet —District Agriculturist, Fairview.
Miss M. Owens —District Home Economist, Two Hills.
Miss A. Schelstraete—District Home Economist, Lacombe.
Mrs. D. Westendorf —District Home Economist, Edmonton (North).
Mrs. L. Maguire —Associate Supervisor 4-H Clubs.
S. Fraser —Assistant Supervisor 4-H Clubs.

SUMMER ASSISTANTS

G. J. Daugela, B.S.A., B.E., Agricultural Engineer, Agricultural and Vocational College, Vermilion.
A. E. Keller, B.E., Agricultural Engineer, Agricultural and Vocational College, Fairview.
F. X. Kehoe, Summer Assistant District Agriculturist, Lacombe.
Mrs. E. Boychuk, District Home Economist, Lacombe.
Mrs. E. Clarke, District Home Economist, Olds.
Miss B. Gordeyko, 4-H Clubs, Edmonton.
Miss J. Banta, 4-H Clubs, Edmonton.
Keith Langille, 4-H Clubs, Edmonton.
Mike Reitsma, 4-H Clubs, Edmonton.
Arnold Malone, 4-H Clubs, Edmonton.
Melvin Minchau, 4-H Clubs, Calgary.
Ed. Bristow, 4-H Clubs, Vermilion.
Arnold Mattson, 4-H Clubs, Lethbridge.
Harvey McLachlan, Agricultural Weather Forecast, Radio and Information Division.

SUMMER TEMPORARY OFFICE

A. J. Wiebe, Associate District Agriculturist, Fort Vermilion.

WINTER ASSISTANTS

G. W. Law, B.Sc., Assistant Extension Engineer, Edmonton.
R. V. Archibald, Instructor, Rural Welding Clinic.
L. M. Wendelboe, Instructor, Rural Welding Clinic.
J. L. Marr, Instructor, Rural Welding Clinic.
J. K. MacKenzie, B.S.A., Instructor, Tractor Maintenance Schools.
Jack Yorgason, 4-H Clubs, Calgary.

NEW DISTRICT AGRICULTURIST OFFICES OPENED

Fairiew, Thorhild.

UNDERGRADUATE SUMMER STAFF

Miss Marion Blades, Assistant District Home Economist, Red Deer.
Miss Donna Chisholm, Assistant District Home Economist, Calgary.
Miss Linda Sorenson, Assistant District Home Economist, Edmonton.

PROFESSIONAL IMPROVEMENT LEAVE

J. G. Calpas, District Agriculturist, Taber.
W. J. Dent, District Agriculturist, Two Hills.
G. R. McNaughton, District Agriculturist, Berwyn.
A. F. Belyea, Associate District Agriculturist, Edmonton, North.

RETIREMENT

E. B. Swindlehurst, B.Sc., Supervisor, Radio and Information Division.

GENERAL EXTENSION

The Extension Branch has found it necessary to alter the emphasis and direction of some of the traditional programs which have been administered and promoted in the past. At the same time, new and greater emphasis has been given to overall farm and home management, rural development, and an improved understanding and use of the principles of communication. Greater use was made of group participation. The media of the press, radio and television was used more extensively to help reach a larger number of people. Studies were made in co-operation with the C.B.C. to evaluate the effectiveness of television as an extension method. These studies indicated a justification for an increased use of television to effectively reach farm families with agricultural information.

Although the farm population has continued to decrease in 1964, the remaining families were more efficient producers and were better farm managers. They required more help from extension workers, more agricultural publications, more specific information and guidance. Extension personnel directed special efforts toward the improvement in the economic position of farm families and their achievement of well planned family goals.

The 4-H Club Program was re-examined by club members, leaders, District Agriculturists, District Home Economists and administrators. Some modifications were made and are reported by the 4-H Division in their section of this report. These modifications were implemented to insure that the 4-H program in Alberta meets the needs and best interests of our rural youth. We continue to emphasize quality and depth, and above all, the rural youth rather than a large number of members and a wide choice of projects.

More attention was paid to the application of agricultural engineering principles to farm operations and the construction of buildings. More assistance was given than ever before to the design of new farm homes and the remodelling of older homes.

Excellent co-operation was received from other Branches of the Department, research workers, farm organizations, local leaders, agricultural industries, the agricultural press, radio and television media. With this help and understanding our Extension personnel were able to be effective in giving meaningful assistance to Alberta farm families.

DISTRICT AGRICULTURIST DIVISION

Continued emphasis was placed on the necessity of involving local people in planning extension programs that more effectively met their wants and needs. Representative groups of farm people have successfully used a "problem solving" approach to identify their most important issues, set priorities and consider possible solutions. These efforts have been encouraging.

Major agricultural extension programs were conducted in the areas of field crop production, livestock improvement, agricultural economics, agricultural engineering, 4-H and youth development. The work of the District Agriculturists in carrying out district extension programs has been appreciably supplemented by regional and provincial subject matter specialists. Special efforts were made to coordinate extension activities and the use of extension personnel.

The need for staff competence, professional improvement, and continuous learning has been recognized and encouraged. All Assistant D.A.'s have been required to take an intensive induction training course followed by a comprehensive written and oral examination. During the year six D.A.'s took post-graduate classes in extension at universities outside of the province. Half of the professional staff received a one-week communications and A.R.D.A. training course at the Banff School of Fine Arts. Other forms of staff training included organized visits to experimental farms, tours, regional meetings and selected reading.

FIELD CROPS

The numerous activities under this section included:

1. **Crop Improvement** (grain, forage and special crops)

Farmers participating in special projects	551
Meetings, demonstrations, field days, short courses, tours, etc.	657
Attendance	16,595
Seed Cleaning plants assisted	73
Seed Drill survey samples submitted	765
Persons otherwise assisted	13,083

2. **Soil Conservation**

Special projects	241
Farms participating	695
Demonstrations	321
Meetings	109
Attendance	4,213
Soil Samples forwarded for analysis	4,921
Persons otherwise assisted	5,373

3. **Weed Control**

Special projects	382
Farms participating	1,698
Demonstrations	374
Meetings	102
Attendance	3,320
Weed specimens identified	1,531
Persons otherwise assisted	4,842

4. **Crop Pests and Diseases**

Meetings	59
Attendance	1,741
Specimens identified	1,430
Persons otherwise assisted	3,760

5. **Animal Pest Control**

Farmers influenced to control warbles, lice, etc.	4,083
Meetings	38
Attendance	1,056
Specimens identified	126
Persons otherwise assisted	1,948

6. **Agricultural Service Boards**

Meetings Attended	362
Tours, field days, etc.	57
Attendance	1,757
Persons otherwise assisted	2,337

7. **Horticulture**

Meetings	110
Attendance	6,988
Farmstead plans assisted	774
Shelterbelt plans assisted	2,954
Demonstrations and farm orchards assisted	303
Persons otherwise assisted	7,423

8. **Beekeeping**

Meetings	4
Attendance	105
Persons otherwise assisted	234

LIVESTOCK

Extension activities principally included efforts to improve the breeding, feeding, care and management of beef cattle, sheep and swine. A summary of these activities included:

1. Livestock Improvement

Meetings, demonstrations, short courses, tours, etc.	265
Attendance	12,908
Herds or flocks culled or selected	241
Feed samples forwarded for analysis	770
Farmers assisted with pedigree registration	1,000
Farmers assisted with R.O.P.	312
Farmers using Departmental dehorners	1,131
Farmers using Departmental tattoo equipment	203
Livestock placements:	
Cattle	2,067
Sheep	2,109
Swine	1,313
Farmers assisted with other livestock projects	2,418

2. Livestock Marketing

Purebred public sales assisted	49
Commercial public livestock sales assisted	52
Persons otherwise assisted	2,633

3. Veterinary and Livestock Disease Control

Numerous enquiries regarding livestock diseases were referred to veterinarians and laboratory services.

Specimens submitted or recommended for diagnosis	1,697
Enquiries regarding diseases and health problems	3,071
Farms assisted with improved nutrition	1,513
Farms assisted with improved husbandry management	1,814
Meetings, short courses, etc.	78
Attendance	3,161
Persons otherwise assisted	1,851

POULTRY

Extension activities by District Agriculturists in this field were limited. 517 persons were assisted. District Agriculturists attended 19 poultry functions where there was an attendance of 1261.

DAIRYING

Dairymen were assisted with cow testing, dairy records, quality production, marketing, improved breeding, care, feeding and herd management.

Activities included:

Special dairy projects	19
Farmers participating	491
Meetings, demonstrations, tours, etc.	57
Attendance	2,524
Farmers assisted with cow testing	212
Dairy herds culled or selected	179
Contacts with dairy manufacturing or frozen food lockers	146
Persons otherwise assisted	1,950

4-H CLUBS AND JUNIOR ACTIVITIES

District Agriculturists played an active role in organizing and supervising agricultural 4-H clubs. They also discussed agricultural topics, educational and career opportunities at various youth functions and with interested individuals.

A summary of these activities included:

4-H functions attended by District Agriculturists	1,749
Attendence	76,379
Farm and Home visits regarding 4-H and Junior Activities	3,538
Talks and demonstrations, etc. by D.A.'s at 4-H functions	1,607
Other Junior Activities assisted	229
Attendance	6,506
Persons otherwise assisted	7,467

AGRICULTURAL ECONOMICS

District extension programs emphasized several phases of agricultural economics. Major topics included: farm records, accounting, business analysis, budgeting, marketing, leases, rental agreements, credit, income tax, estate planning, economic principles.

The main activities in this field are outlined in the following table:

AGRICULTURAL ECONOMICS TOPICS	INDIVIDUAL CONTACT		SMALL GROUPS			MASS	
	Farm Visits	Office Visits	No. of Groups	No. of Meetings	Attendance	Meetings	Attendance
1. Farm Records and Accounting	671	1,641	84	237	4,205	20	746
2. Farm Business Analysis	464	817	64	122	1,565	21	1,068
3. Budgeting	220	458	40	71	988	5	150
4. Marketing and Price Outlook	171	728	14	20	474	12	791
5. Farm Lease and Rental Arrangement	202	646	6	10	196	5	373
6. Farm Credit	189	957	5	11	195	7	305
7. Income Tax and Estate Planning	78	302	9	11	196	14	891
8. Economic principles	165	492	19	29	539	10	470
9. Other	368	940	19	43	770	19	794

Summary of above:

Farm Visits	2,450
Office Visits	6,706
Organized discussion groups	125
Families participating	1,311
Total group meetings	539
Total attendance	8,303
Total Families worked with (individually or in groups)	3,400
General Meetings and short courses	113
Attendance	5,268

AGRICULTURAL ENGINEERING

Numerous agricultural engineering activities were conducted dealing with farm buildings, water and sewage installations, drainage, irrigation, farmstead mechanization, rural electrification, materials handling and farm machinery.

Activities in this connection included:

Farm Calls	2,351
Office Calls	7,539
Demonstrations and field days	54
Attendance	4,242
Schools, short courses and meetings	157
Attendance	8,313

PUBLICITY

Various mass media were generally used more extensively. These included:

	1963	1964
Newspaper releases	1,778	1,825
Newspapers using releases	89	92
Newsletters written	370	442
Newsletter circulation	34,345	61,310
Radio talks and interviews	351	414
TV appearances	74	61

Radio and T.V. also carried numerous releases and spot announcements. 1,257 such messages were recorded.

OTHER ACTIVITIES

Twenty-four agricultural advisory councils held 75 meetings with an attendance of 1,200. In addition A.R.D.A. was discussed at 64 meetings with an attendance of 1,146. 160 other meetings were organized with an attendance of 5,783. D.A.'s assisted 149 district organizations with 341 meetings with an attendance of 12,648.

SUMMARY OF DISTRICT AGRICULTURISTS' ACTIVITIES

	1963	1964
Meetings	4,892	5,136
Attendance	230,074	239,333
Farm Visits	19,164	18,781
Office Visits	64,347	69,408
Phone Calls	55,607	57,855
Letters written	47,176	55,319
Bulletins and circulars distributed	151,023	207,936

4-H DIVISION

The past year has been an exceptionally busy one for the Division with the established program being maintained and additional activities added. Interest in 4-H continued at a very high level which is reflected in a substantial increase in membership during the year and in support of individuals and organizations.

A serious setback in the fall was the loss of three senior staff members—Mr. V. T. Janssen, Mrs. L. Maguire and Mr. S. Fraser. All three had served for a considerable period of time and had through dedicated services made a tremendous contribution to the program.

A major change during the year was the introduction of multi-project clubs. This will now allow communities with a sparse rural population to amalgamate 4-H project interest groups and form a single club.

Assistance with the Program

(i) Other Department Branches:

Substantial assistance in the judging of achievement days and in other phases of the program was given by members of the Livestock, Field Crops, Dairy, Poultry and Agricultural and Vocational Colleges Branches. In addition the Agricultural and Vocational Colleges were hosts to Club Weeks, Provincial Eliminations, and other 4-H events. An accounting of much of this assistance will be found in the reports of these branches. In all cases, the help given was very much appreciated.

(ii) Canada Department of Agriculture:

Financially the Canada Department contributed $16,268.70 to the 4-H program in Alberta during the 1963-64 fiscal year. Staff from the Federal Department also assisted in judging 4-H events, in scoring of carcasses, in ribbon branding 4-H beef and in the obtaining of carcass grading information. In addition, the Canada Department had on loan to 4-H clubs during the year one dairy bull, three boars and five rams. This very substantial contribution assisted greatly the 4-H program.

During the year agreement was reached on a revision of Federal assistance to 4-H to be implemented in 1965. This allows for a slightly broader program and one which will provide for more uniformity among the provinces.

(iii) Organizations:

There was continued strong and active support from organizations to 4-H at the Provincial level. This assistance amounted to approximately $38,600.00—a substantial increase over the year previous. This assistance is exclusive of premiums paid on 4-H livestock. In addition the field staff of the Alberta Wheat Pool and the United Grain Growers Ltd. actively assisted with numerous 4-H functions throughout the year.

Substantial support was also in evidence at the local level from service clubs, boards of trade, agricultural societies, banks, livestock associations and others. The total value of local support, while difficult to determine would be very high.

4-H CLUB DISTRIBUTION IN ALBERTA, 1963-64

	1963		1964	
Agricultural Projects	No. of clubs	Members	No. of clubs	Members
Beef	197	3,586	225	4,277
Dairy	60	981	52	826
Swine	8	104	6	80
Sheep	4	51	3	42
Poultry	1	16	1	12
Field Crops	45	698	44	697
Sugar Beets	1	22	2	35
Corn	1	18	1	12
TOTAL	317	5,476	334	5,981
Increase (Agricultural Clubs)		505 members		17 clubs

	1963		1964	
Homemaking Projects	No. of clubs	Members	No. of clubs	Members
Clothing	97	1,296	109	1,474
Garden	48	605	57	756
Food	17	236	20	251
Home Decoration	.....	.....	1	23
TOTAL	162	2,137	185	2,504
Increase (Homemaking Clubs)		367 members		25 clubs
Total (All Projects)		8,485 members		521 clubs
Increase (All Projects)		872 members		42 clubs

Organized Club Activities

Between 80% - 90% of all 4-H work is carried out individually by members at home. This includes work on the project and on special assignments. In addition club members in 1964 took part in organized group activities as follows:

Regular club meetings	4,542	Rallies	101
Special Meetings	718	Tours	427
Total Organized 4-H Activities	6,286	Achievement Days	397
Increase in attendance over 1963	13,376	Leadership Courses	101
TOTAL Attendance (4-H members and other Persons)			171,083

Leadership Training and Recognition

A total of 20 one-day regional courses were held which were attended by 980 leaders and assistants. In addition, four one-day project workshops were organized for clothing and foods leaders. Attendance at these was 75. Two junior leaders one-day training courses were held at Vermilion and Ponoka with an attendance of 160.

Two provincial two-day training courses were held at the Corona Hotel, Edmonton. Attendance at the two totalled 312. In these sessions in particular much greater stress was placed on some of the basics of general leadership. Resource personnel from the University were used to assist with this.

Five year leadership certificates were presented to 44 persons, ten year certificates to 13 persons and fifteen year certificates to 2 persons.

4-H Club Weeks

Three Club Week programs were held at the Olds and Vermilion Agricultural and Vocational Colleges. Total attendance at these weeks was 513 delegates representing an equal number of clubs. The general program theme was "This Land is Your Land".

Provincial 4-H Eliminations

These were held at the Olds Agricultural and Vocational College. Total attendance was 165 senior 4-H members representing most districts in the Province. Selections were made for all major awards. Results were as follows:

National 4-H Club Conference, Ottawa, Ontario, November, 1964.

Jack Johnson, Red Deer 4-H Beef Club
Gary Scheler, Hastings Coulee 4-H Beef Club
Larry Hixt, Beiseker 4-H Beef Club
Dwight Smith-Gander, Wavy Lake 4-H Beef Club
Terry Leslie, Merna 4-H Beef Club
Le Anne Oviatt, Stavely-Parkland 4-H Beef Club
Clifford Goerz, Lakemere 4-H Beef Club
Gail Kirkelund, Ryley Dairy Club
Stanley Schuler, Hilda 4-H Field Crops Club
Barry McDonald, Mannville-Vermilion 4-H Poultry Club
Linda Beck, Duchess 4-H Clothing Club
Berta Briggs, South Edmonton 4-H Clothing Club
Kay Glasier, Gadsby 4-H Garden-Horticulture Club
Jean Trennery, South Ponoka 4-H Garden Club

Montana State 4-H Congress—Bozeman, August, 1964.
Donald Wright, Olds 4-H Dairy Club
Garry Hanson, Balzac 4-H Beef Club
Diana Aronson, Holborn 4-H Garden-Horticulture Club
Mary Jane Vincent, Horn Hill 4-H Clothing Club

U.S. National 4-H Conference, Washington, April, 1965.
Donna Bunburry, Alliance, Alberta

Inter-Provincial 4-H Exchange—July, 1965.
To: Newfoundland—David Matviw, Vegreville 4-H Field Crops Club
Nova Scotia—Leonard Robinson, Mossleigh
New Brunswick—Hugh Fodchuk, Myrnam 4-H Beef Club
Prince Edward Island—Elaine Pekse, Millarville Food Club
Quebec—Wm. Snyder, Carstairs 4-H Beef Club
Ontario—Valerie Jacknisky, Thorhild 4-H Clothing Club
Manitoba—Mike Malmberg, Cardston-Chinook Beef Club
Saskatchewan—Barbara Sinnott, Windy Poplars Clothing Club
British Columbia—Leslie Burwash, Balzac 4-H Dairy Club

Exchange Programs

(i) Alberta - Montana 4-H Exchange:

This was the 18th year of this exchange and as usual it proved to be a highlight. Delegates from Montana who were guests at Club Week at Vermilion included:

Sharon Oxford	Arlie	William Powell	Cardwell
Mary Hutchens	Whitefish	David Philips	Ashlands

The Alberta delegates listed previously were accompanied to the State Congress by Mr. C. Cheshire, Supervisor, District Agriculturists and Mrs. Mona Cox, District Home Economist, Calgary.

(ii) Canada - U.S.A. Exchange Program:

Canada again sent a delegation of ten 4-H members and two departmental representatives to the U.S. National 4-H Conference in Washington, D.C. In return U.S. delegates were guests at the National 4-H Conference, Ottawa and Toronto. The departmental representative to Washington was Mrs. Louise Maguire, 4-H Division.

(iii) Inter-Provincial 4-H Exchange:

1964 marked the second year of this exchange program financed by the Royal Bank of Canada in co-operation with the Canadian Council on 4-H Clubs and the Provincial Departments of Agriculture. One selected delegate from each province visited in Alberta for two weeks while nine went from Alberta to the other nine provinces. This is a farm to farm type of exchange designed to give 4-H members a better understanding and appreciation of Canada. Agreement was reached during the year to have this as an annual event.

Visiting and Outgoing Delegations

(i) Visitors:

In addition to those mentioned elsewhere 4-H in Alberta was host to the following during the year. Two delegates from Saskatchewan at Olds Club week. Two delegates from Saskatchewan at Provincial Junior Leadership Camp. Six delegates from B.C. at Fairview Camp. Ten delegates from B.C. at Vermilion Club Week. 38 delegates from B.C. as guests of the Red Deer District 4-H Council. One delegate—Gotfred Skuterud, I.F.Y.E. delegate from Norway to Provincial Leaders Conference, Edmonton.

(ii) Outgoing Delegations:

Two delegates, Faith Ogilvie, Lacombe, and Jack Johnson, Red Deer to Montana 4-H Conservation Camp, Kallispel, Montana. Two delegates, Lorraine Nielson, Ponoka, and Sharon Habberfield, Langdon winners in Provincial 4-H Public Speaking to Saskatchewan 4-H Leadership Camp. 27 delegates to the Armstrong area of B.C. to live with host families.

Award Trips for Leaders:

For the first time award trips were established for leaders. Those named were selected on the basis of their record of achievement in leadership.

(i) Seventh Western Canada Farm Safety Conference:

Four leaders—Don Berg, Millicent; Russel Sterling, Westlock; Colin Fraser, Leduc; Clarence Baker, New Norway, were named to attend the conference. Expenses of the trip were assumed by Line Elevators Farm Service. In addition to recognition, leaders gained new ideas in safety for use in their clubs.

(ii) Montana State 4-H Congress:

Ten leaders were sponsored to this event by Calgary Power Ltd. and Canadian and Northland Utilities Ltd. Leaders were:

Mrs. John Evjen	Stony Plain	Mrs. Albert Paul	Namao
Mr. John Moore	Tofield	Mr. Ken Edgerton	Beaverlodge
Mr. Herman Grosfield	Brooks	Mr. Robert Bunbury	Alliance
Mr. Art Avison	Ponoka	Mr. Mike Achtymichuk	Waskatenau
Mr. Allan Shenfield	Spruce Grove	Mrs. Edna Tremblay	St. Paul

General 4-H Activities

(i) Camps, Rallies, Tours:

Fair camps were conducted at Vermilion, Vegreville, Camrose and Edmonton. In Calgary a rural youth week was sponsored by the Calgary Exhibition and Stampede Association. Camps were also held at Elkwater, Buffalo Lake, Waterton and Fairview. In addition to the camping program this year, was a one-week Junior Leadership Camp at Gold Eye Lake. Monies for this were provided by the Canadian Centennial Commission. One Junior Leader from each D.A. and each D.H.E. district was invited. This was evaluated as a very worthwhile endeavor. Total attendance at summer camps was 1,055.

Banquets and rallies were held in most districts during the year. Many of these were year end activities taking the form of color nights. Average attendance was about 175 persons.

(ii) Thematic Displays—Floats:

The building of displays and floats continued to be a popular 4-H activity with entries being noted at most summer fairs, and many achievement days. Provincial winners in thematic displays were: The Josephburg Field Crops Club at Edmonton and the Medicine Hat Dairy Club at Calgary. Both displays went forward to compete in the Inter-Provincial at Regina.

The Edmonton Journal again strongly supported 4-H floats in the Edmonton Exhibition Parade. This resulted in a total of 9 entries.

(iii) Public Speaking:

This has become a very popular and worthwhile activity in 4-H. In addition to training given at reglar meetings in self-expression, public speaking competitions were held at club, district, regional and Provincial levels. Provincial winners were: Southern Alberta—Sharon Habberfield, Langdon; Northern Alberta—Lorraine Nielson, Ponoka. A new introduction into competions for 1965 will be impromptu speaking.

(iv) 4-H Demonstrations:

This phase of 4-H work was emphasized more strongly than ever during the year. All delegates to Provincial Eliminations were required to give demonstrations. In addition, 4-H demonstration booths were set up at the Calgary and Edmonton Exhibitions with members giving prepared demonstration publicly throughout the week.

(v) Farm Safety:

Promotion by 4-H clubs of the use of the Slow Moving Vehicle Emblem was introduced during late 1964. The Emblem and the necessary equipment that goes with it is to be manufactured in Alberta. For the present 4-H clubs will be the sole distributors in the Province. It is felt this could be a very worthwhile undertaking by 4-H.

District 4-H Councils:

Three new councils were formed during the year bringing the total active to 20. Councils are proving in many cases to be able to provide effective assistance in organizing and conducting inter-club activities and in distributing awards.

Press, Radio and Television:

Excellent coverage was obtained from all three media in 1964. The 4-H weekly T.V. program established three years ago on C.F.R.N. - T.V. was expanded during the fall of 1964 to include C.F.C.N. - T.V. The 4-H Division undertakes the responsibility of preparing most of the programs. These were of an instructional nature beamed at 4-H members, parents and leaders. Radio Station C.F.C.W. Camrose again held a winter 4-H program competition. The C.B.C. discontinued its weekly 4-H broadcasts but has incorporated 4-H news into the daily farm broadcast and weekly farm telecast. 4-H division staff were guests on 42 radio and 46 television programs throughout the year.

Publications:

4-H Club News: Two issues of the bulletin were published by the Division during the year. Total distribution to 4-H members and supporters of the program was 8,000 copies per issue.

New publications prepared by the 4-H Division were: "Weed and Insect Manual" and "Wardrobes for Young Adults".

Revision of the following publications was completed during the year: "First Year Beef Project Book", "Beef Club Record Book".

College 4-H:

The college 4-H clubs at Olds and Vermilion were organized for a second year. The program carried out during the year was basically one of leadership development.

Post 4-H:

The 4-H Alumni club on the University Campus continued to be active with a membership of 35. This group of former 4-H'ers keeps in close touch with the 4-H Division.

The fifth annual reunion of former provincial 4-H delegates was held at the Banff School of Fine Arts. This group of Alumni work closely with the 4-H Division.

Provincial Record and Project Book Competitions:

Winners were:

Food
- 1st year—M. Tatem, Tilley
- 2nd year & up—E. Pekse, Midnapore

Clothing
- 1st year—M. Pickering, Red Deer
- 2nd year & up—L. Nielsen, Ponoka

Garden-Hort.
- 1st year—I. Nichols, Castor
- 2nd year & up—L. Nielsen, Ponoka

Field Crops
- G. Morison, Innisfail

Dairy
- B. Buckland, Tilley

Scholarships:

(i) **Wheat Board Surplus Monies Trust Fund Scholarships:**

A total of 21 of these scholarships each to the value of $100.00 were awarded at Club Weeks. Names of recipients are contained in the report of the Board of Trustees found elsewhere in this annual report.

(ii) **J. Pennington Memorial Scholarships:**

Three scholarships were made available in 1964 from earnings of a fund established to provide scholarships for 4-H members by the late J. Pennington, a former 4-H leader. The scholarships for 4-H members are valued at about $500.00 and are tenable in agricultural or related courses at colleges of agriculture and universities. At least two will be provided annually. 1964 winners are: Walter Preugschas, Mayerthorpe; Ronald Lind, Cherhill; Wilfred Ryder, Cherhill.

The following scholarships, the awarding of which was based in part on 4-H record, were awarded during the year.

(iii) **Other Scholarships:**

(a) Canadian National Exhibition Scholarship—value $600.00 to Miss Jennifer Brown, Cherhill.

(b) Henry Wise Wood Memorial Scholarships—value of $135.00 each, and tenable to Colleges of Agriculture: Ron Yorgason, Olds; Kay Glasier, Gadsby; Robert Sikora, Warspite; Barry McDonald, Mannville; Laurent Benoit, Donnelly; Jack Silvaniuk, Hazelmere.

(c) Alberta Wheat Pool Scholarships—each to the value of $200.00 and given to students in Home Economics at the University of Alberta: Diana Aronson, Stony Plain; Joan Nykolyn, Sarrail; D. Strynadka, Willingdon.

(d) Edmonton Rotarian Scholarships—value of $100.00 each and tenable at the Colleges of Agriculture or an Agricultural or Home Economics degree course: Elaine Hennig, Stony Plain; Raymond Cranston, Ft. Saskatchewan; Mary Leah Milligan, Bon Accord; Danny Lefsrud, Viking.

Agricultural Projects

Beef Clubs:

The beef projects continued the rapid growth of recent years to establish a record membership of 4,277 in 225 clubs. The two senior options, the pen of five and the breeding projects showed a gain in popularity and provided a new challenge to many older members. The minimum age for the breeding project was lowered to 14 years in the fall.

The new record book was well received. Leaders generally are now doing the marketing of this book in place of Department personnel.

Delegates from beef clubs to the Western Stock Growers Convention in Calgary included Richard Groom, Ponoka and Melvin Butler, Youngstown. This has now become an annual award trip sponsored by the Association.

Exceptionally strong local support of 4-H beef sales was in evidence in most areas. This support relieved the major packing plants of some of the increasingly heavy purchases being expected of them.

Dairy Clubs:

There was a reduced number of clubs active during the year, but dairy was still second only to beef in popularity in the agricultural projects.

A total of 30 delegates representing all clubs from Red Deer north were guests of the Alberta Dairymen's Association Convention in Edmonton. These delegates participated actively in the program.

The Provincial 4-H Dairy Show held in conjunction with the Red Deer Exhibition attracted 30 entries in the calf class and 24 in the yearling class. Winners were as follows:

Champion—B. Young, Calgary
Reserve Champion—D. Longeway, Crossfield
Calf Class—B. Young, Calgary
Yearling Class—D.Longeway Crossfield
Showmanship—L. Aronson, Calgary

The Alberta Dairymen's Association and the Red Deer Exhibition again assisted materially with the show.

The Alberta Dairy Princess this year, Miss Doris Wyllie was a member of the Vegreville Dairy Club.

Sheep, Swine and Poultry Clubs:

There were no major changes in these projects during the year. A further incentive to swine clubs will be a newly established award trip for two delegates to the Alberta Locker Convention and a representative from each club to the Western Hog Growers Association Convention. The delegates in each case will be sponsored by the association concerned.

Field Crops Clubs:

These clubs were again sponsored provincially by: The Alberta Wheat Pool, the United Grain Growers Ltd., and the Line Elevators Farm Service. Winners in the Provincial Plot Competitions were:

Junior Project—Henry Nyberg, High Prairie
Intermediate Project—Bill Gibson, Carbon
Senior Project—Wendy Noble, Okotoks

The twenty-first Provincial Junior Seed Fair was held in conjunction with the Calgary Chamber of Commerce Seed Fair and short course. The Fair attracted 201 entries in 15 classes.

At the Royal Winter Fair, an Alberta 4-H member, Bill Gibson of Carbon captured the World Wheat Championship. In addition, Alberta 4-H members took 12 of the first 14 placings in the 4-H wheat class, 2nd in oats and 3rd in barley.

HOMEMAKING PROJECTS:

Clothing Clubs:

These continued to be the most popular homemaking project. An increase of 12 clubs was registered. Complete revision of the first year clothing projects increased interest considerably. Emphasis on buymanship, fabric information and wardrobe planning increased interest for senior members.

Food Clubs:

Membership decreased in food clubs this year. The projects remained the same as in past but with more emphasis on meal planning, food buymanship and management. Basic cookery skills, still important, were aimed toward the everyday situation.

Home Decoration:

Although we have no complete Home Decoration Clubs, a few senior clothing club members are carrying the Home Design for Better Living as a project. In this project, the girls apply art principles and sewing techniques to practical problems in home decoration.

Garden-Horticulture Clubs:

The project continued to grow in interest for boys as well as girls with an increase of nine clubs being registered. First year boys eagerly accepted the new secondary project offered on 'Weeds and Insects'.

New Projects:

Variety in Vegetables:

Senior members of one garden-horticulture club in the province undertook this on an experimental basis. It has been designed to teach members skill in using vegetables in a variety of ways and in a pleasing combination with other food for family menus.

Multi-project Clubs:

The declining rural population and the increased interest in a wide variety of projects in 4-H has precipitated the introduction of multi-project type clubs. To date, groupings have been of projects somewhat similar in nature. However, during 1964 two pilot clubs were formed involving beef and dairy in one and beef and clothing in another. These operated successfully with the result that multi-project clubs were offered in the fall of 1964 for winter projects.

Along with multi-projects a new and uniform system of evaluating the achievements of members in all projects has been introduced. This system will require the voluntary club leaders to rate a considerable portion of the work of the members.

HOME ECONOMICS EXTENSION DIVISION

Home Management	No.		Attendance
Lectures and Demonstrations	401		9,461
Home Visits	164		
Home Management Groups	16	(387 members)	
Home Management Group Meetings	78		1,872
Farm and Home Program Group Meetings	45		
Home Visits (Farm and Home Programs)	26		
Persons otherwise assisted	2,551		

A definite increased trend was noted in requests made by families and individuals for information on buying large household appliances, furnishings, finishing materials for home building, draperies and budgeting to enable them to make better decisions. Lectures and demonstrations presented by our staff increased by 63 over last year.

Various aspects of Home Management (money, time, energy, consumer education) are also incorporated in other areas of extension work such as costs and credit for building farm homes, which was included in the Home Building program.

Home Management Courses were conducted by eight staff members; these were requested by groups and individuals. In a number of these groups programs incorporated such subjects as Wills and Estate Planning, Steps to Security, Credit Costs, C.A.C. and B.B.B., which enabled both husbands and wives to attend.

"High Cost of Living", "Cost of Credit", "Appliances Cost Money", "Buymanship of Furniture, Clothing and Food" were other subjects presented.

Nine Home Economists worked jointly with their District Agriculturists in local Farm and Home programs.

The Home Management Specialist and several District Home Economists were involved in preparing, presenting and summarizing material for the short course, "This Business of Farming", which showed how some of the farm management tools and techniques can be applied to making decisions in the farm home. Several other Home Economists were also involved in conducting follow-up programs after the T.V. course was conducted.

One-day Home Management Workshops were conducted with the staff for the first time to assess the needs of rural families. Problem areas and needs were discussed to enable our staff to plan more effective local programs.

Food and Nutrition	No.	Attendance
Demonstrations	24	6,983
Lectures and Study Group Meetings	170	
School Lunch Programs (organized and assisted)	2	
Home Visits	186	
Persons otherwise assisted	2,944	

The Home Economics Division received increased recognition by food producer groups, food processors and marketing outlets as an important link in liaison with the consumer. There has been an increased demand for information re: food regulations, services and responsibilities of governmental divisions concerned with the various phases of food handling. Attempting to meet the many and varied requests for information and assistance presented a problem which was not adequately met with present staff. While assistance was provided to meet the needs of special groups, e.g., low income families and Welfare recipients, working mothers, teenagers, those living on special diets, the aged, etc., these groups are in sufficient numbers to warrant more specific programs to motivate self help and to establish rational eating behaviour.

With the greatly increased choice and forms of food available homemakers were concerned about the comparative cost and nutritional value.

Other topics dealt with:

Managing Your Food Dollar
New Food Products and Best Buys
Fad Diets and Weight Control
The Consumer Speaks about Meat
Does it Pay to Freeze and Can?
School Lunches and Family Fare
The World Food Situation
Time and Money Saving When Feeding the Family
Sanitation in Food Preparation and Service
Alberta Grown Vegetables and Nutritional Value

Economics related to food was specifically discussed at 51 Home Management meetings and partially at other Management meetings.

Twenty-three lectures on Emergency Feeding were given at Civil Defence Training Courses for 952, and eight Civil Defence Organization meetings attended. Assistance and guidance was given in planning menus, food purchasing and management at 11 camps for young people and for industrial organizations.

Newspaper articles, newsletters, radio and T.V. addresses and releases were used to extend up-to-date information on food and nutrition to homemakers.

Clothing and Home Sewing	No.	Attendance
Sewing Clinics (3 days or more)	129	5,945
Sewing Clinics (1 day only)	18	189
Demonstrations and Lectures	353	8,549
Individuals Assisted	1,877	
Home Visits re: Clothing	352	

The greatest demand by the rural homemaker in the field of clothing was for more instruction in sewing. Sewing Clinics held by the District Home Economists increased by 21. 63% of those attending were sewers who required to be taught basic methods and techniques. Improved teaching methods were incorporated into the program. Homemakers who were able to sew for themselves and their families requested information on sewing for the home, with the result that topics such as "Sew and Save—Make Your Own Draperies" and "Slipcovering Can be Simple" were requested more often.

Lectures and demonstrations were increased by 26% over those held in 1963. Homemakers realized more and more the importance of being up-to-date in the field of textiles, and requested information on how to evaluate fabrics on the market for their use and the care involved. In order to bring the latest information in this field to Alberta homemakers, the Clothing Specialist attended the American Home Laundry Manufacturer's Convention held in Minneapolis, Minnesota. The information was evaluated and the pertinent details were incorporated into the clothing programs carried on by the District Home Economists.

The Clothing Specialist conducted Regional Clothing Workshops with the District Home Economists to evaluate the requests of the rural homemakers and to develop programs to meet their needs.

Handicrafts	No.	Attendance
Lectures and Demonstrations	90	3,411
Individuals Assisted	604	

Although handicrafts were not promoted as an integral part of the programs developed for the rural homemaker, assistance was given as time permitted. The District Home Economists stressed the importance of selecting worthwhile crafts so the articles made would be of good design, practical and functional and worthy of the time spent in creating them.

The District Home Economists were called on to judge handicraft displays at conventions and fairs. Wherever possible, comments were given with a view to improve standards in all types of crafts exhibited.

Home Design	No.	Attendance
Lectures and Demonstrations:		
(a) Housing	51	4,657
(b) Decorating	100	
(c) Home Design, Home Building and Remodelling Schools	11	
Homes Planned:		
(a) Complete	106	
(b) Partial	173	
(c) Building and Finishing Materials	311	
(d) Storage Areas	140	
Homes Remodelled:		
(a) Complete	19	
(b) Partial	91	
(c) Utility, Kitchen and Bathroom	129	
Major Improvements	18	
Persons Assisted: (Color, House Plans and Home Furnishings)	1,956	
Total Home Visits (Home Planning, Decorating and Remodelling)	1,214	

Individual assistance in all fields of Home Design increased by 36.5%. The number of house plans alone increased by 50%; 106 were prepared this year as compared to 71 in 1963.

Right decisions in the buymanship of housing materials were most important, because of the major expense involved, the permanency of the decisions and rapid developments in new materials. To help conserve time in meeting demands for assistance, the questionnaire, "So You're Planning a New Home" was developed.

One major problem for today's farm family deciding to build was lack of up-to-date blueprints. Of the many hundreds available, few have value for rural living. To help overcome this problem, a folder of 18 "Farm House Plans—Designed for Alberta Living" was developed. Even though blueprints are not available for these plans, the folders are being used constantly on a loan basis.

Many requests for assistance arise from Home Building and Remodelling Schools, radio tapes and Short Courses. A large majority of requests come from people who have heard from neighbours of the service offered.

Nationally, housing figures receive notable attention. The Dominion Bureau of Statistics reported housing starts were up 8% in the first nine months of this year over the same period of time in 1963. Furniture sales for the same period were up 7%. First quarter furniture sales in Alberta were up an overwhelming 18.9%, which was felt to be spurred on by the wheat sales.

In group work, two new topics were developed, "Does it Pay to Remodel?" and "Farmstead Color Schemes".

Limited staff and increased demand in Home Design permitted only 50% of the requests for Home Building and Remodelling Schools to be fulfilled. Time does not permit development of up-to-date publications.

4-H GIRLS' CLUBS

District Home Economists organized and supervised all phases of 4-H Girls' Club work in their districts. They were assisted by Specialists and summer staff in conducting such functions as achievement days, rallies, camps, judging and public speaking competitions. Some of the District Home Economists assisted with provincially organized 4-H functions. Details regarding these activities are in the 4-H Division report.

Number of 4-H Homemaking Clubs	207
Number of Lectures and Demonstrations	857
4-H Functions Attended	798
Total Attendance	32,026
Home Visits re: 4-H and other Junior Work	705

OTHER ACTIVITIES

District Home Economists co-operated with other departments and organizations namely—Departments of Industry and Development, Welfare, Health, Indian Affairs, Education, Municipal Affairs, Cultural Activities and Recreation Division, Chambers of Commerce, Rotary, Kiwanis and other Service Clubs, Agricultural Societies, Exhibition Associations and Fair Boards, Cooperatives, Provincial and local organizations of W.I.'s, W.A.'s, F.W.U.A.'s C.A.C., C.G.I.T., Scouts, Provincial and local Breeders and Agricultural Producer Associations, e.g., Potato Growers, Seed Cleaners, Sheep and Swine Breeders, Frozen Food Lockers, etc., F.U. & C.D.A. Teams and A.R.D.A. Committees, C.B.C., U. of A. and Ex-Servicemen's Homes for Children. These were helped by giving demonstrations and lectures and arranging programs at 142 meetings attended by 4,640 persons, as well as attending, planning and organizing meetings.

The Department of Welfare received assistance through revision of the Scales of Allowances for food and clothing used throughout the province and at 6 training courses for Welfare personnel. Also, 16 meetings were attended, 63 Welfare families requiring 69 home visits and 154 individuals guided, at the request of Welfare.

Twelve District Home Economists worked jointly with the District Agriculturists in establishing 14 Advisory Extension Councils (268 members), and 16 Home Economics Advisory Committees holding 32 meetings. District Home Economists co-operated with District Agriculturists or worked separately in organizing and addressing 52 Short Courses, attended by 3,999 persons, and 13 tours for 1,137 persons.

At 81 meetings attended by 4,097 persons topics dealt with were:

Happy Family Living
Careers and Furthering Education
Understanding Children and Teenagers
Social Changes and the Family
More Successful Meetings
Prepare now for Widowhood
Farmstead Landscape Design
Using the Horticulture Guide
Where to Find Out?
Horizons of Health
Everyone's Doing It
Put Your Best Face Forward
Community Meals
Entertaining Graciously
Giving Toasts, Introducing and Thanking Speakers

District Home Economists acted in an advisory capacity at 39 Fairs and Conventions and arranged 15 Exhibits.

Services of this Branch were outlined at 182 meetings, attended by 5,696. Agricultural and Vocational College Courses were outlined at 30 meetings. Specific information was given 962 persons.

INFORMATION AND PUBLICITY

District Home Economists were involved in regular weekly local programs for radio and T.V. in various areas of the province. Also, a weekly address was prepared for "Call of the Land".

Weekly newspaper articles are prepared by each District Home Economist.

Newspaper Articles Written	946
Number of Newspapers Using Articles	92
Radio Releases	84
TV Releases	16
Radio Talks and Interviews	151
TV Talks, Demonstrations and Interviews	21
Newsletters Written	232
Total Average Circulation	22,390
Publications Distributed	72,670

Summary of Activities:

	1963	1964
Demonstrations, Lectures, Field Days & Short Courses	2,477	2,665
Fairs and Conventions	227	183
Total Attendance	105,320	107,982
Letters requesting information	15,772	16,388
Home Visits	2,467	2,810
4-H Girls' Clubs	162	207
Office Interviews	6,126	7,115
Phone Calls for Information	13,440	15,199

AGRICULTURAL ENGINEERING

The number of schools, field days and activities in which the agricultural engineers participated was greater than in previous years, despite the shortage of staff during part of the summer months. More important was the change in the extension engineering program, and the addition of new subject material.

This change was accomplished by reducing the number of schools dealing with basic agricultural engineering subjects, and adding a number of "production" schools such as swine production, beef production and dairy production schools. These schools were made possible by the excellent co-operation of the other branches, and were well received by the farm audience. The engineering and management factors were considered on one specific livestock enterprise at each two-day production school.

The Rural Welding Clinics, which are conducted in co-operation with the Canadian Vocational Training and the Alberta Department of Education, were changed to provide more individual and comprehensive instruction. This was accomplished by providing two instructors at consolidated schools and permitting the use of one welding unit to each student. In previous years only one instructor was present, and students shared welding units.

The one-week Tractor Maintenance School was introduced in 1964. These schools are also administered by the Extension Engineers in co-operation with Canadian Vocational Training and the Alberta Department of Education. Inclement weather reduced attendance and it was therefore difficult to determine the success of these schools.

As a member of the Groundwater Advisory Committee of the Research Council of Alberta, the Senior Extension Engineer organized a series of Water and Well Development Schools. These were recommended by the Council and the Alberta Well Drillers Association. The Extension Engineers received the co-operation of the Research Council of Alberta, the P.F.R.A., the Water Resources Branch and industry in providing speakers for the above mentioned school. The schools were well received by district farmers, as well as a number of drillers who took the opportunity to attend. These schools are the start of a program to encourage better water well development in the province.

Farm calls and correspondence indicated that requests for information and service was proportioned as follows: 60% Buildings, 20% Water and Sewage, 15% Farmstead Mechanization and 5% Machinery and others.

The following tables summarize the Agricultural Engineering activities carried out by the Extension Engineers and Instructors for 1964.

Schools	No.	Attendance
Farm Building (General)	12	388
Swine Building	2	88
Home Building and Remodelling	7	282
Sewerage and Plumbing	8	253
Tractor Maintenance	8	112
Rural Welding Clinic	30	720
Water and Water Well Development	4	213
Beef Production	5	144
Swine Production	4	150
Dairy Production	2	20
Swine Mechanization Exhibit and Short Course	1	962
Demonstrations and Field Days		
Water and Sewerage	13	555
Forage	6	360
Machinery	7	250
Building Tours	8	328
General		
Meetings	45	
Farm Notes	12	
Radio and TV Programs	9	
Plan Production	3	
Bulletins and Pamphlets	4	
Farm Calls	402	
Surveys	156	

RADIO AND INFORMATION DIVISION

GENERAL

1964 was a year of change and new development for the Radio and Information Division. With the retirement of E. B. Swindlehurst as Supervisor, the Radio and Information Branch became a division of the Extension Branch.

The entire department became more aware of the usefulness of mass media. Television was used for the first time as an extension tool on a province wide basis. An inter-branch newsletter, issued regularly once a month, was started at the request of the staff. The number of listeners to "Call of the Land" increased despite a decrease in the number of radio stations carrying the program.

A policy providing limited sponsorship of radio and television programs involving departmental staff was approved on a trial basis. Television workshops were held at Red Deer, Stettler, Lethbridge, Morinville, Two Hills and Edmonton for departmental staff who found themselves using television as an extension tool. The new policy regarding sponsorship, administered by the Radio and Information Division, provided guidelines for District Agriculturists and District Home Economists to participate in a daily television program at Lethbridge, a weekly program at Lloydminister, a daily morning radio broadcast at Red Deer, and a weekly radio broadcast at Camrose.

The division also assisted with editing and general publicity work, including the preparation of the summary booklet for the T.V. short course "This Business of Farming" for viewing in 1965.

Topical information for farm and home releases through press, radio and television was obtained from personnel in many fields of agriculture. The excellent co-operation received has been both gratifying and appreciated.

RADIO PRODUCTION

During 1964, "Call of the Land", a Monday to Friday farm radio broadcast, was aired 262 times on nine Alberta Radio stations. The following stations carried the broadcast throughout the year.

CKUA	Edmonton	12:20 p.m.	CKSA	Lloydminster	12:50 p.m.
CFRN	Edmonton	12:45 p.m.	CJDV	Drumheller	12:50 p.m.
CFGP	Grande Prairie	12:05 p.m.	CJOC	Lethbridge	12:00 p.m.
CFCW	Camrose	12:05 p.m.	CHAT	Medicine Hat	1:05 p.m.
CKRD	Red Deer	12:45 p.m.			

"Call of the Land" was discontinued on CKXL Calgary in May. The Station's program policy was changed and a suitable time period could not be arranged.

Radio provided current information related to extension programs, local and national agricultural news and items to assist the farmer in the management of his operations. Emphasis was given to the personal interview to provide a closer association between research and extension personnel and the agricultural producers of Alberta. Since the program had a considerable urban following, consumer information was included to a greater extent in the format. The program also provided wide publicity for coming events and coverage of agricultural meetings and conventions.

EVALUATION

The Bureau of Broadcast Measurement Survey provides an assessment of the program. In spite of one less station in a heavily populated area the listening audience increased. Quarterly reports indicated that between 100 and 110 thousand households listened to the broadcast once or more a week. The provision of "choice" time periods by stations throughout the province at reduced commercial rates was greatly appreciated and was perhaps an indication of the favourable response to the program.

Cost of the service remained less than one cent per home per day.

PROGRAMMING

Efforts were made to provide coverage to all segments of the agricultural industry. The major source of program material originated within the Alberta Department of Agriculture. The following table indicates the nature and frequency of material used:

Items Used	No. of Programs
(a) Personality interview	250
(b) On-the-spot report and interview	122
(c) Miscellaneous items and announcements	795
(d) Editorial—by commentators or guests	44
(e) Musical—special days—Christmas	1
TOTAL	1,212

Sources of personality appearances are indicated in the following table:

Alberta Department of Agriculture	207
Other Alberta Government Departments	11
Canada Department of Agriculture	50
University of Alberta	33
Farm People (including 4-H)	32
Others	39
TOTAL	372

A total of 1,212 items were used on the 262 programs. The following table provides a breakdown of the material and the number of separate topics dealt with during the year.

General Agriculture (including world and national items)	330
Livestock	294
Field crops, soils and water	306
Farm safety	9
Farm management and Farm Economics	72
4-H	47
Poultry	24
Dairying	41
Veterinary Science	24
Horticulture	53
Agriculture Engineering	36
Agriculture Pest Control	40
Schools of Agriculture	33
Apiculture	6
Fur Farming	5
Home Economics and Extension	69
Miscellaneous (Announcements, etc.)	390
TOTAL	1,779

Series of special programs were carried at regular intervals. These included veterinary reports for stockmen and consumer information for homemakers. Seven weekly programs were devoted to farm buildings. Promotional material was provided to support programs sponsored by agricultural organizations including Good Seed Month and Farm Safety Week. Periodical market outlook reports were featured again this year.

For the seventh consecutive year, a series of programs containing results and interviews direct from the Royal Winter Fair were released daily through the Alberta Government Telephones' network. Radio station CKUA was the originating station for the seven network broadcasts. In addition, night press reports of Alberta winnings at the Royal were supplied to five daily news outlets which subscribed to this service.

"Call of the Land" was produced, recorded and distributed from the studios of the Radio and Information Division. A total of 3,808 farm broadcasts had been produced by December 31, 1964.

TELEVISION

The Alberta Department of Agriculture again co-operated with the other prairie provinces, the three prairie universities and the C.B.C. to produce the television short course "This Business of Farming" for viewing in January 1965. The first television short course, shown in January 1964 was viewed by just less than fifty per cent of the Alberta farm population. It was carried on all CBC and CBC affiliated stations in Alberta. A local follow-up program on the Lethbridge station proved very popular with farmers. Arrangements were completed with stations in Medicine Hat, Lethbridge, Red Deer, Edmonton and Lloydminster to provide follow-up programs in 1965.

Topics for the telecourse prepared for 1965 included farm machinery, forage crops for livestock, swine production and farm and home management. There were no provincially produced programs as in the previous telecourse. But farm and home management as a means of providing a profitable and satisfactory farm living was again the main theme. Excellent co-operation was received from commercial firms and farm organizations in publicizing and promoting the telecourse.

The Division, in co-operation with the Film and Photographic Branch, Provincial Secretary's Department, provided 1,400 feet of film coverage of Alberta's achievements at the Royal Winter Fair to the province's eight television stations. Alberta was the only province to provide this service. Television stations regard it as a regular part of their programming at that time each year.

AGRICULTURAL WEATHER FORECASTS

1964 was the fourth season of Farm Weather Forecasting sponsored as a joint project by the Provincial Department of Agriculture and the Dominion Public Weather Office located at the International Airport. Following the pattern of 1963, forecasts were prepared and disseminated six days a week from May 19, 1964 to October 10, 1964. A total of 124 forecasts were issued during this period.

The previous (1962 and 1963) forecast format was used again this year. Forecasts began with a "Farm Weather Synopsis", a normal synoptic discussion with a farm slant. Reference was made to expected weather for the following 3, 4 or 5 days with information tailored to the farmers needs. A second section was composed of a regional forecast for the following day with an outlook for the third day. These forecasts prepared daily except Sunday by personnel from this Division were issued at 10:00 a.m. through the wire services of Canadian Press to all daily news media in the province.

A verification study at the end of the season showed that 79% of the extended forecasts were accurate and useful to the farmer. A survey to evaluate the Agricultural Forecasting Service was conducted through the District Agriculturists' offices in September. It indicated overwhelming support for the continuation of the program and 64% of the farmers requested that the project be expanded to a year round operation. Approximately 78% of the farmers who replied said that the forecasts were of value in planning their work.

Approval by farmers and news media encouraged a continuation of this program.

SCIENCE AND THE LAND

Fifty-three reports on research projects were released during 1964.

Periodic visits were made to the Research Station, Lethbridge; the Faculty of Agriculture, University of Alberta; the Forest Biology Laboratory, Calgary; the Soils Substation at Vegreville and the Experimental Farms at Beaverlodge and Lacombe. Discussion with scientists about their work and results formed the basis of Science and the Land releases.

FARM NOTES

Farm Notes, prepared by the Information Officer, continued to be well received. A change in format to a single story per sheet, double spaced, for editors and field staff brought many favorable comments. Their increased appearance in a wide variety of newspapers, farm publications and on the air indicated their favorable acceptance.

During the year, 52 issues of Farm Notes were released, containing 322 items of farm and home interest.

NEWS RELEASES

There was an increased demand during 1964 for news releases to meet special needs. This resulted in the editing and distribution of approximately 30 releases of the type not usually used in Farm Notes or Science and the Land. They were widely used by most outlets, and the farm press in particular, indicated a desire for more of these.

In addition, a monthly resume of "Coming Events" was prepared to publicize meetings and short courses sponsored by the Alberta Department of Agriculture. This release was presented in a form which enabled radio Stations to use the announcements as "fillers". The material was used extensively on commercially sponsored farm programs on local stations and the CBC provided radio time each morning for this public service feature.

EVALUATION

A review of the mailing list served as an evaluation of the popularity of Farm Notes and Science and the Land. Subscribers were asked to return a self-addressed postcard within 30 days if they wished to continue receiving these two publications. Of the 716 cards mailed out, 541 or just over 75 per cent were returned. This did not include the grain companies, each of whom received several hundred copies. Their agents felt strongly that these publications were very useful to both their customers and staff.

This brief evaluation and the increasing number of requests from other government and agribusiness representatives to be placed on the mailing list indicated the popularity of these two publications and their usefulness in the diffusion of new technological information.

OTHER EXTENSION PROGRAMS AND ACTIVITIES

FARM LABOUR

General

Again in 1964 there was no serious shortage of unskilled Farm Labour in Alberta. There were some seasonal and local shortages of relatively short duration. There does continue to be a shortage of skilled, and experienced farm labourers to handle machinery, irrigation, dairying and livestock. This shortage is due more to the unwillingness of skilled farm workers to wait for a few months at the best of suitable employment. They seek more stable and more attractive work in other industries. Many of the skilled farm workers do receive employment in Agribusiness, the industries which process, transport and market agricultural products.

Work as farm labourers was not attractive enough to appeal to skilled or semi-skilled farm workers. This situation was blamed on the following reasons:

(1) Unemployment Insurance does not apply to Farm Labourers.

(2) Workmen's Compensation is not generally applied to farm workers.

(3) Working hours, holidays, fringe benefits and stability of employment do not compete with same conditions in industrial employment.

(4) The status and stability of farm work is considered to be at the lower end of the economic ladder.

(5) Housing for farm workers was not good enough.

The economic size of most farm business does not justify the employment of full time farm labour.

Placement of farm workers directly through District Agriculturist offices:

General farm workers	487	Married Couples	41
Harvesters	233	Farm domestics	8

National Employment Service

District Agriculturists referred the majority of requests for Farm Labour through the local offices of this service. Willing cooperation was received from all officers of this service.

Federal-Provincial Farm Labour Committee

This committee again administered the recruitment, transportation, registration and distribution to beet growers of Indian workers. The majority of the workers again came from Northern Saskatchewan. Sufficient Indian workers were available to handle the sugar beet labour requirements. Increasing numbers of Indians are accepting employment in the canning crop industry, the green vegetable industry, the canning factories, the potato fields, the hay fields and general farm work.

Fieldmen

Two summer fieldmen were employed during the busy labour season to help with Indian labour placements, disputes and to obtaining commitments from employers for advances on transportation and medical care.

Total number of Indian workers employed in sugar beet fields	2,327
Number of workers from Saskatchewan	1,723
Number of workers from Alberta	595
Number of workers transported and registered by N.E.S.	1,743
Growers using Indian beet labour	683
Estimated total value of earnings in sugar beet, vegetable crops and general agricultural employment	$900,000
Estimated value of earnings—sugar beets only	$557,000

AGRICULTURAL SOCIETIES

Summer fairs occupied the major share of attention and effort of Agricultural Societies. Many fairs increased the amount of prize money paid to exhibitors and were partially successful in increasing entries.

Some Societies increased their contribution and service to their communities by sponsoring such activities as livestock shows and sales, seed and horticulture shows, agricultural short courses or schools, farm and home improvement programs and 4-H activities.

Fairs held in 1964:

"A" Class—Calgary, Edmonton, Lethbridge
"B" Class—Camrose, Lloydminster, Red Deer, Vegreville, Vermilion, Wetaskiwin
"C" Class—Athabasca, Battle River, Benalto, Darwell, Donnelly-Falher-Girouxville, Grande Prairie, Lougheed, Medicine Hat, Olds, Pincher Creek, Priddis-Millarville, Vauxhall, Westlock, Wildwood, Willingdon
Not classified—Mayerthorpe, Peace River

Societies active, but not holding fairs:

Alix, Argyle, Barrhead, Cardston, Central Alberta, East Central Alberta, Edmonton and District, Drumheller, Fairview, Grand Centre, High Prairie, High River, Lamont, Lousana, Nanton, Okotoks, Plamondon, Rimbey, Rocky Mountain House, Spirit River, Stettler, St. Paul, Taber, Victoria Trail

Other Activities:

Livestock Shows and Sales	48
4-H Club Activities sponsored	68
Short Courses or Schools	131
Horticultural Shows (Bench Shows)	23
Seed Fairs	7
Machinery Field Days	2
Farm and Home Improvement Programs	3
Others not included above	33

MASTER FARM FAMILY PROGRAM

Two families were successful in receiving the highest honors available to Farm Families in Alberta.

The Charlie Moore Family, Debolt

The Ken Burns Family, Didsbury.

NAMES OF HOMES ACT

Number of homes registered in 1964	45
Total registrations for the province	547

PUBLICATIONS AND VISUAL AIDS

Publications:

This Branch endeavoured to meet its obligation to the Agricultural Public by making available an increasing number of publications on a wider variety of topics. More specialized publications on specific topics were supplied. Although the number of farm families continue to decline, those remaining are better educated and require more information to help them in their increasingly complex farm business.

Requests for plans for farm and home buildings, furnishings and equipment increased over former years.

Publications distributed by the Extension Branch from all sources:

Agricultural general	218,908
Homemaking	72,670
Individual building plans	21,461

Visual Aids:

A more adequate supply of visual aids was made available to the Extension staff and other personnel of the Department. The following items of equipment are available either on loan, or directly from Extension offices:

Movie projectors	10	Public address systems	8
Slide projectors	62	Overhead projectors	1
Film Strip projectors	2	Tape recorders	5
Cameras	50	Projection screens	50

Projection screens, slide projectors, 35 mm cameras and portable blackboards were supplied to all offices.

Films available and use made of films:

No. of meetings at which films were shown	445
No. of films shown by Extension staff	489
Films owned by Branch	67
Films on loan	93
Total audience viewing films	36,045

ALBERTA IRRIGATION PLANNING BOARD

This board was set up by the Minister of Agriculture in 1961 to consider and recommend to the Minister with respect to additions to existing Irrigation districts or new Irrigation districts. Two regular board meetings and three sub-committee meetings were held during the year.

Board Members:

S. S. Graham	—Chairman, Director of Extension.
G. Parlby	—Secretary, Farm Economics Branch.
Earl Bowser	—Members, Senior Pedologist, Canada Department of Agriculture.
T. W. Manning	—Head, Agricultural Economics Department, University of Alberta.
C. J. McAndrews	—Colonization Manager, S.M.R.D. Branch, Dept. of Agriculture, Lethbridge.
John Mould	—Supervising Engineer, Water Resources Branch, Department of Agriculture, Lethbridge.
Sam Blair	—Farmer, Picture Butte.

Report of the Veterinary Service Branch

E. E. BALLANTYNE, V.S., D.V.M., F.R.S.H., Director
J. G. O'DONOGHUE, V.S., D.V.M., Assistant Director, Field Division
H. N. VANCE, V.S., D.V.M., Assistant Director, Laboratory Division
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A. GENERAL

The work load for 1964 was extremely heavy with increases recorded in all phases of Branch activities. This wasn't due to an increase in disease, but simply a reflection of the technical revolution in agriculture and an increased awareness that veterinary medicine can positively contribute to the efficiency of profitable farm production. Many activities have considerable significance to public health and to wildlife.

It is interesting to note that the Department's veterinary service was first provided in 1914 with the appointment of the late Dr. P. R. Talbot as Provincial Veterinarian. The main objective was to lecture at the several Schools of Agriculture, but in addition, assistance in general was given to livestock owners on disease problems, especially in homesteading areas. Even at that time and in succeeding years, the work load was quite heavy necessitating the employment of other veterinarians on a part-time basis. In 1940, the laboratory service was added with Dr. T. L. Jones appointed as the first Provincial Animal Pathologist. The field and laboratory services were amalgamated in 1947 into the present Branch structure.

Since 1940 a total of 220,000 specimens have been examined at the laboratory, plus serology tests on approximately 500,000 blood samples with 400,000 being for brucellosis. The annual increase was from a few hundred in 1940 to 23,101 in 1964.

There were no serious disease outbreaks during the year. The western equine encephalomyelitis situation was checked more scientifically with blood samples being obtained by practising veterinarians from 47 suspect cases. Complement fixation tests showed only 7 as positives. A Western Canada Conference attended by veterinarians, medical officers, entomologists, etc., was held at the University of Saskatchewan on May 20th to dis-

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*In charge of a laboratory section.

cuss the disease, research projects, etc. The first losses from anthrax in buffalo in Alberta in Wood Buffalo Park occurred in July in the Lake Claire area. Previously the disease in this species had been confined to the herds in the N.W.T. The survey on diseases that cause normal mortality and economic loss in laying flocks was completed with 1691 specimens being obtained from the 5 flocks with a total of 28,459 hens. The study to devise better disease control in broiler flocks was outstanding in that losses in the experimental project were reduced from 25% to 30% down to 3% to 5%. This was of considerable economic importance and a contribution to knowledge.

A mastitis survey was undertaken with the co-operation of the Alberta Dairymen's Association with the results to be analyzed as the basis for determining future action. Bulk sales from 680 herds were tested in the main milk sheds with a considerable percentage indicating a mastitis problem. This was followed with setting up a small pilot control program before revising the present program on a province-wide basis. A preliminary survey of internal parasitism of cattle was undertaken. The tests on approximately 1500 cattle indicated the presence of sufficient internal parasites to justify expanding the study to gain more data. Assistance was given to Health authorities in investigating possible sources of paratyphoid food poisoning cases. Vibriosis of cattle continues to be a problem and it is hoped in time that vaccine research in the United States will develop an effective control measure. A study of herds known to have infection several years ago was commenced in an effort to provide more information as to the cause of the disease under Alberta conditions.

Again there were no cases of rabies which makes a negative record since 1956. The disease though was watched, as positive cases, mainly in skunks, occurred in Saskatchewan as far west as Moose Jaw. As a result Alberta's Central Rabies Control Committee of 1952-56 was reactivated and proposed that the Pest Control Officers on the Alberta-Saskatchewan border, who have effectively kept rats from becoming established in Alberta, be utilized to depopulate skunks in that area as a preventative measure. On rat work they contact 5,000 farmers who could also assist in the skunk control program.

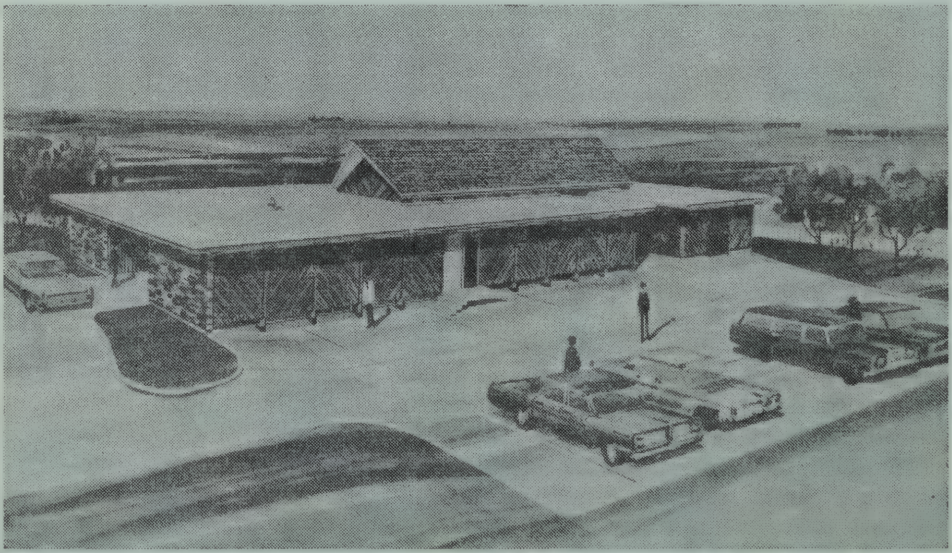
The University of Saskatchewan appointed Dr. D. L. T. Smith of the Ontario Veterinary College, as Dean of the College of Veterinary Medicine. His early staff appointments included four Albertans namely, Dr. C. H. Bigland as Head, Department of Microbiology, Dr. N. O. Nielsen, Assistant Professor, Department of Pathology, Dr. O. M. Radostots, Department of Clinical Medicine and Surgery, and Dr. H. C. Carlson as Assistant Professor to be in charge of the Division of Poultry Diseases in the Department of Pathology as of July 1, 1965. Drs. Bigland, Carlson and Nielsen were former employees of this Branch.

A site has been chosen and preliminary planning is well under way for a building to house the new College of Veterinary Medicine on the Saskatoon campus of the University of Saskatchewan. The new college with its teaching, research and service facilities will comprise a complete veterinary medical center on the Saskatoon campus. The facilities will be located on a twelve and one-half acre site. The new multi-million dollar building to contain an estimated 160,000 sq. ft. is expected to be started in early 1965.

In the Sessional Records of the Alberta Legislature, it is interesting to note that experimental work on bovine abortion was conducted in 1923 on the C.P.R. Farm at Strathmore. Also in 1927 administering Brucella vaccine to calves at an early age was advocated. In 1932 a request was made by the Alberta Veterinary Medical Association to the University of Alberta for the latter to produce the vaccine. The first official program in Alberta was started in 1944 with 2,357 calves being vaccinated. This has risen to 468,378 in 1964. The results of the current Federal blood testing program to be completed in 1965 prove the value of Alberta's Brucellosis Restricted Area Program as approximately 0.4% are positive compared to 1.5% across Canada. Also, the cattlemen have received several millions of dollars value as well as the general public in the drastically reduced hazard of undulant fever.

Veterinary inspection at Class D, E and F stockyards increased by 25% to 988,910 animals, compared to 791,251 in 1963. 14,025 animals rejected from marketing channels certainly prevented the spread of many diseases The value of livestock inspected was estimated between $80,000,000 and $90,000,000.

The Veterinary Laboratory recorded a 29% increase in specimens examined totalling 23,101 compared to 17,881 in 1963. 11,666 serological tests were made, 6,315 tissues examined histologically, 21,479 specimens examined bacteriologically, and 807 specimens processed for poisons, etc. Service was provided



Artist's drawing of Regional Veterinary Laboratory, Alberta Department of Agriculture, Lethbridge.

to the Federal Department of Agriculture for brucellosis testing for interprovincial and international trade, as well as into their Brucellosis Control or Certified areas in Alberta, bull sales, etc.

Construction commenced on the Regional Veterinary Laboratory, Lethbridge, with completion date estimated for June, 1965. Considerable time was spent on planning for a consolidated Agricultural and Biologic Laboratory to include the present Veterinary and Dairy Laboratories, the Crop Clinic, the Soil and Feed Testing Laboratory, Biologists of the Department of Lands and Forests, and the Analyst. Such consolidation could provide facilities for a strong scientific core essential to formulating, evaluating and servicing government policies.

Committee work on residues, pesticide operators courses, milk quality, livestock medicines, A.I. technician courses, predator control, emergency measures training, rabies, swine health, laboratory services and various other subject matters concerning Department policy involved considerable time of the Director. This involved dealing with those of many disciplines or fields including agriculture, health, wildlife, legal, food and drug, etc.

One of the problems in preventive veterinary medicine is to devise ways and means for further curtailing the farm to farm sale of animals from herds or flocks that have had an infectious or contagious disease. Regulatory activity would be complex and not always fair in many cases due to the nature of the diseases concerned such as vibriosis, paratyphoid, ornithosis, etc., and due to the fact that accurate identification of infected or carrier animals is not possible with present tests such as is possible with bovine tuberculosis and brucellosis. Considerable research is needed in this field to provide the facts so that economic and public health safeguards can be developed into a sound policy. Recognizing the need for increased veterinary research facilities in Alberta was the basis of the Alberta Veterinary Medical Association presenting a brief to the Cabinet requesting the establishment of such a unit in the interests of the livestock industry.

Appreciation is expressed to the Extension, Livestock, Poultry, Field Crops, Dairy and Fur Farms Branches, practising veterinarians, municipal councils, feed manufacturers, biologists, R.C.M.P., University of Alberta, and many others for assistance in furthering the work involved in disease diagnosis, prevention and control.

Details of the various activities of the Field and Laboratory Divisions are outlined below with additional technical data to be included in the addenda of the Branch report.

B. FIELD SERVICES

This included the administration of official legislative programs, such as Brucellosis Control and Veterinary Inspection Services, livestock Health Programs, the investigation of specific disease problems, field study projects and extension.

SUMMARY OF ACTIVITIES

Field Investigations:

Cattle	44
Swine	25
Sheep	5
Horses	10
Poultry	89
Fur Animals	9
Wildlife	8
Total	190

Meetings:

Brucellosis	15
Domestic Animals	53
Poultry	12
Professional	22
Others	90
Total	192

Inspections:

Livestock Markets	123
Stockyards	326
Livestock Medicines	350
Slaughterhouses	8
Swine R.O.P. Bonus	13
Swine Health Herd	70
Brucellosis	10
Total	1,167

Lectures:

University	63
Short Courses	17
Others	26
Total	106

Individual Farm Visits	273

VETERINARY PERSONNEL

(a) Students

(1) 75 Albertans are taking the general science pre-veterinary course at colleges as follows:

	1st Year	2nd Year
U. of A., Edmonton	24	26
U. of A., Calgary	11	5
Lethbridge Junior College	7	......
Camrose Junior College	2	......
Total	44	31

Those in the second year who obtain 65% will be eligible to enrol in the four year veterinary medicine course at the College of Veterinary Medicine, University of Saskatchewan in the Fall of 1965, or at other veterinary colleges.

(2 The 44 Albertans attending veterinary colleges were located as follows for the 1964-65 year:

	1st	2nd	3rd	4th	5th	Total
Ontario	3	4	10	12	11	40
Washington	......	......	2	......	......	2
Iowa	......	......	......	......	1	1
Quebec	......	......	1	......	......	1
Total						44

(b) Practicing Veterinarians

The number in private practice was 152, and 7 new practices were established. Many were multiple practice clinics. Sixteen of the twenty-one veterinarians that entered practice were graduates of universities outside of Canada.

Brucellosis Control

The compulsory vaccination of heifer calves, under the Brucellosis Restricted Area Plan, was in force throughout Alberta.

During the year the Federal Health of Animals Branch certified 17 municipalities, making a total of 54 Brucellosis Certified

Areas. The blood testing of cattle was underway in all remaining areas of the Province. Of two million cattle on premises tested to date, by the Health of Animals Branch, the percentage of reactors to the Brucellosis test was .4 per cent.

(a) Calfhood Vaccination

468,378 calves were vaccinated with Brucella abortus Strain 19 vaccine. The Brucellosis Program commenced in 1945, and to date, four and one-half million heifer calves have been vaccinated. Regulation 528/62, effective January 1, 1964, was passed prohibiting the vaccination of male calves with Brucella abortus Strain 19 vaccine. This was implemented since vaccination of bull calves served no useful purpose in the Brucellosis Eradication Program.

A meeting of Federal and Provincial Veterinarians was held to discuss various aspects of Brucellosis Control. It was agreed that the age of "Official Vaccinates" would be 120 to 270 days. It was anticipated that this would become effective early in 1965.

(b) Brucellosis Restricted Areas

All cattle raising areas of the Province were under the Brucellosis Restricted Area Plan with complsory vaccination of heifer calves.

The Brucellosis Restricted Area Program was administered by 152 Veterinarians and 67 Field Supervisors appointed Inspectors under the Livestock Diseases Act. The agricultural Service Board and the Brucellosis Committees, in the case of Improvement Districts, carried out the organizational part of the Program.

The Municipal District of Starland No. 47, completed five years of compulsory vaccination, following the commencement of the Federal blood test, and reverted to a voluntary vaccination program on December 31, 1964.

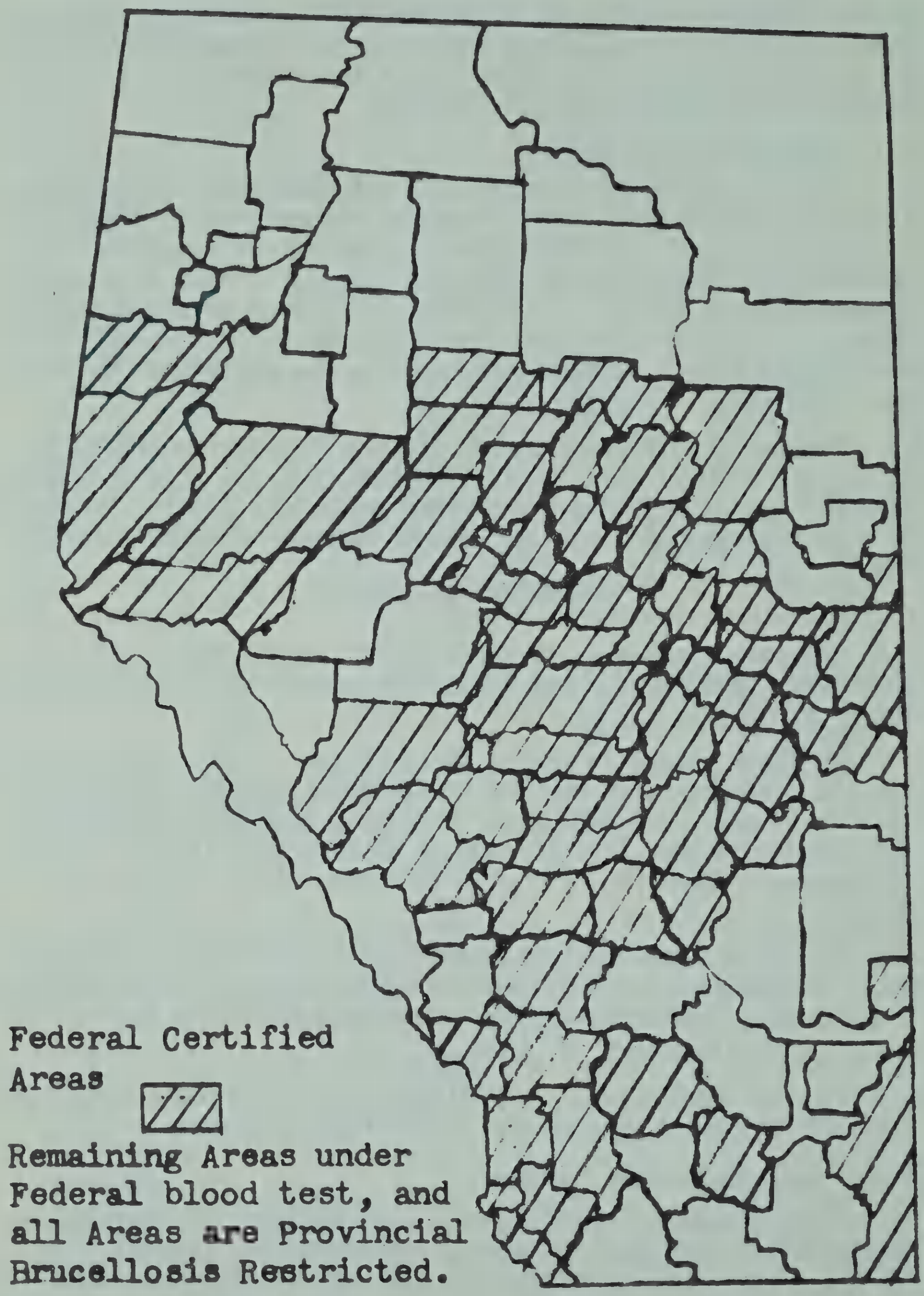
The accompanying map illustrates the progress of the Federal-Provincial Brucellosis Eradication Program.

Veterinary Inspection Service

Sixty livestock markets were active during 1964. One operated for a few months in the spring and one during December only. Two markets—one at Evansburg and one at Drayton Valley—were destroyed by fire and were not rebuilt. A total of 988,910 animals received veterinary inspection at 3,147 sales. 14,025 animals were rejected as diseased. Only 644 cattle were marked for slaughter as they could not qualify for sale under the Brucellosis Regulations.

The diseases most frequently encountered in cattle at the auction markets were Mastitis, Cancer Eye, and Enteritis. Rhinitis, Mange, and Pneumonia were the most common reasons for rejecting swine.

The practising veterinarians were employed for 4,006 Man Days for Livestock Health Inspection and 147 days for sanitary inspection.

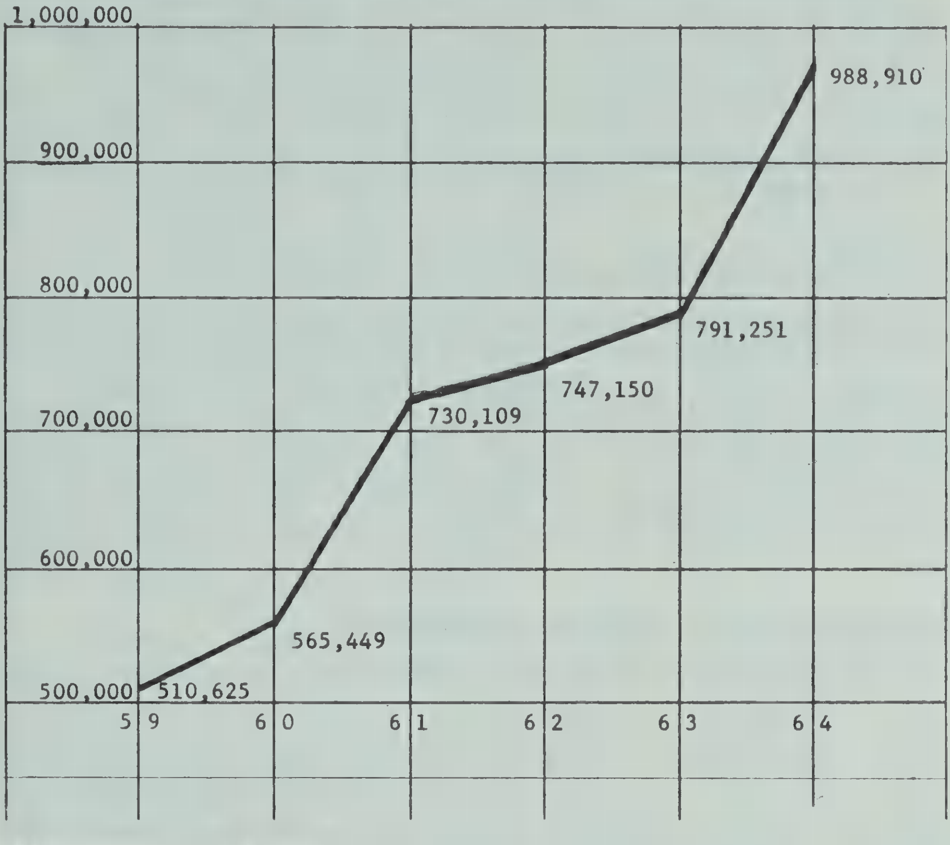

Federal Certified Areas
▨
Remaining Areas under Federal blood test, and all Areas are Provincial Brucellosis Restricted.

A survey to determine the volume and health status of livestock moving from British Columbia to Alberta was conducted in August. During the fall cattle sales, fecal samples were collected at ten different markets. Laboratory examination of these samples indicated a very low incidence of internal parasites in the animals passing through the auction markets.

A meeting of the Veterinary Inspectors was held at Red Deer on January 23rd. Sixty-two practitioners were present.

Thirty-six Class "C" and two hundred and thirty-three Class "G" stockyards were under supervision and all were visited at least once during the year.

Livestock Inspected at Class "D", "E", and "F" Stockyards.



Educational Courses

Individuals do a better job of disease prevention when well informed. The Fourth Annual Feed Industry Conference was held in cooperation with the Industry and the University of Alberta, Department of Extension. The fourteenth 3-day Hatcherymen's Course was held in cooperation with the Poultry Branch. Assistance was given to the W.S.G.A. in planning their first Stockmen's Short Course of one week's duration at the Banff School of Fine Arts, as well as to two 5-day A.I. Technicians' Refresher Courses, and to another less formal meetings.

The Livestock Medicine Regulations

Three hundred and forty outlets were licensed during 1964, an increase of seventeen from 1963. Three hundred and forty-four inspections were made of licensed premises. Approximately two thirds of premises inspected were found to be complying with all of the regulations. Of those not complying, most were of a minor nature which was corrected on the spot. One licensee was placed under temporary suspension.

The Advisory Committte met twice during the year. They considered new applications for licenses and re-drafted the Livestock Medicine Regulations, which were approved by O.C. 922/64, and came into effect August 1, 1964. The new regulations clarify several sections, as well as amending one section to state that no person shall sell to the public any livestock medicines except under the authority of a license.

Returns received from licenses indicated that biologics, antibiotics, scour treatments, and swine anemia preparations still comprise the greater part of retail sales of scheduled items.

Under Poultry Vaccine Regulations, licenses to sell Infectious Bronchitis and Newcastle Disease Vaccines were issued to 31 Pharmacists, 15 Hatcheries, and 24 Veterinarians. A total of 127,000 doses of these products were reported sold.

Licensing of Slaughterhouses and Humane Slaughter

These regulations became effective January 1962, and followed the standards for humane stunning methods approved and adopted by the Federal Government and the R.S.P.C.A. Shooting with a regular rifle was not approved, but a type of safe stunning cartridge was used on a trial basis in certain plants under Federal meat inspection. Again, no action was taken against the use of a rifle, pending an official ruling from the Society and Federal Authorities. Eighty-eight slaughterhouses were licensed.

Certified Healthy Herd Program—Swine

With continued progress, a veterinarian was added to our staff with the primary responsibility of supervising this program. Additional herds were enrolled to a total of thirty-two purebred swine premises. Herd health was based on 70 unannounced herd inspections, the examination of 1,545 specimens from market pigs, and veterinary reports on 41 casualties. In the twelve-month period a swine population of approximately 15,000 was supervised.

The number of certified herds was increased to 11, and herds granted supervised status numbered 12. The contribution to the knowledge of swine health problems continued to be most significant.

Disease Reporting Statistics

To complement information gathered from laboratory submissions, and direct from livestock owners, a procedure for morbidity and mortality reporting was maintained. Selected veterinary practices cooperated representing approximately 10% of veterinary service calls made in the year. The system did not provide for the reporting of losses where veterinarians were not consulted.

Monthly returns were processed covering calls to 11,089 premises.

Agricultural Emergency Measures

Saving human lives has first priority in Emergency Measures activities in case of a national emergency. The provision of safe, wholesome food is the second priority; and in fact, it is an integral part of the first. This food would have to come from farm productions very early in an emergency. According to calculations, Alberta and the rest of Western Canada could have vast food resources that would be uncontaminated by radio-active fallout. But some would be contaminated directly, and indirectly, through the soil, forage, and animals raised in a fallout area. Normal marketing and processing could be seriously affected.

The Alberta Department of Agriculture Emergency Measures Plan was designed to take care of the problems mentioned above, as well as assisting in case of biological and chemical warfare. The plan was the first one designed for agriculture in Canada and served as a model for other provinces. It provides for full cooperation and integration with the Federal Department of Agriculture in Alberta to work as an integrated agricultural unit.

Lectures on the Alberta Plan and potential effects of modern warfare on Agriculture, the role of the veterinarian, and decontamination, were given by the Director to various groups, including agrologist and veterinary courses at the Canadian Civil Defence College, Arnprior; orientation, radiological and nurses courses at the Alberta Civil Defence School; Emergency Health Service courses, short courses, etc.

All key professional staff in the Department have received formal training at the Alberta or Canadian Civil Defence Colleges.

C. LABORATORY SERVICES

The primary responsibility of the laboratory was to provide a diagnostic service to the livestock industry. The laboratory provided equipment and specially trained personnel not available in private clinics or practices. This enables us to use diagnostic techniques most essential as a second line of defence against livestock diseases.

To have maximum value in disease control, the reports of examinations must be accurate, detailed, and despatched quickly upon completion. New tests are continually being put into use. Improvements in techniques, staffing, and equipment were made to make full use of the research information becoming available to us. To keep abreast of the medical sciences and new diagnostic methods, a regular program of seminars and conferences was carried on for the professional staff. A modest library of 20 periodicals in veterinary medicine and allied fields also aided us in meeting this responsibility.

The laboratory division attempted to have its staff members spend a portion of their time on field work in the form of consultations with veterinary practitioners and other disease investigations. This is important with reference to our maintaining contact with changes in the industry at the producer level and as a further service to livestock owners and veterinary practitioners.

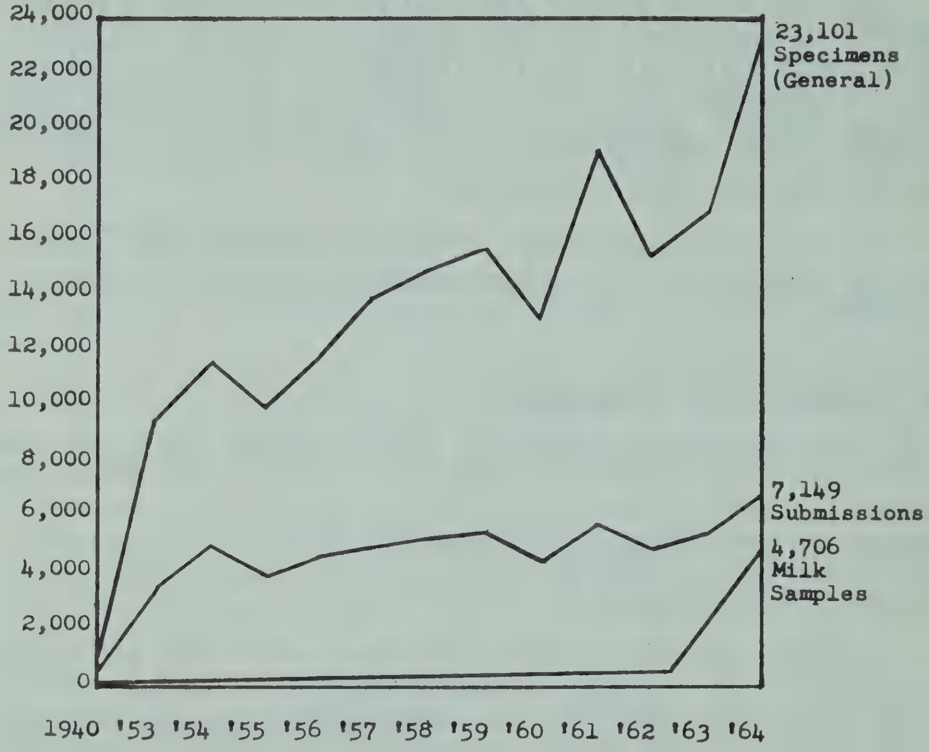
Other responsibilities undertaken included some extension work in the form of meetings, radio tapes, field days, and press releases.

Specimens

The following graph indicates the general increase in the numbers of submissions and specimens examined during the history of the laboratory. A total of 23,101 general specimens representing 7,149 consignments were examined in 1964. This represents a 30% increase in work load over that of the previous year and does not include milk samples. The sharp increase in milk samples is due to the fact that this laboratory took over all mastitis milk sample testing from the dairy laboratory in July, 1963.

TOTAL NUMBERS OF SPECIMENS AND SUBMISSIONS

(Excluding Blood)



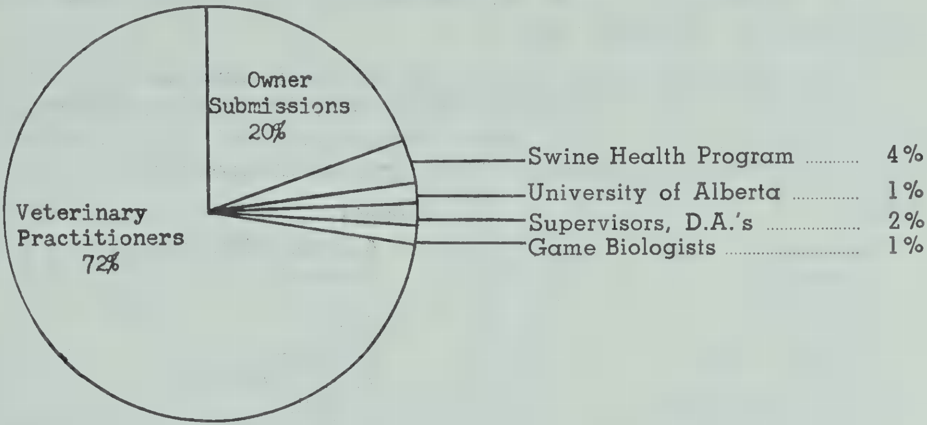
Species

Following is a list of the domestic species and numbers of specimens examined from each. While these accounted for the bulk of the work load, a wide variety of wildlife species were also examined.

Swine	4,230	
Cattle	2,683	
Sheep	180	
Horse	167	
Canine	735	
Feline	299	
Chickens	7,429	
Turkeys	2,485	
Others	293	(avian)
	1,936	(animal)
Total	20,437	

Animal Disease Section

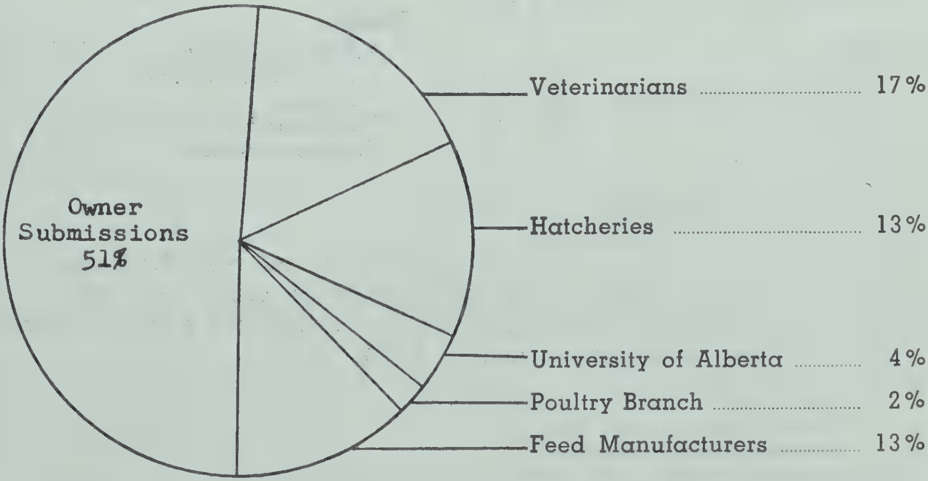
The Animal Disease Section examined 10,229 specimens from a total of 4,026 consignments or premises (excluding the Brucellosis blood samples). The circle graph reveals that practicing Veterinarians made 72% of the submissions while the remaining 28% were made by the other professional groups and owners.



Poultry Disease Section

The Poultry Disease Section is responsible for the diagnosis of diseases in birds. 2,192 submissions were received; 10,821 specimens from 43 avian species were examined.

The chart illustrates the distribution of the submitters of the specimens.



Prominent Diseases

With a few exceptions, the diseases of economic importance were diagnosed at the laboratory with approximately the same frequency as in 1963.

Encephalitis of viral origin has been diagnosed in baby pigs on a number of premises. This condition has been responsible for deaths in very young pigs.

Disorders of the digestive system, and pneumonia, were diagnosed with great frequency in cattle, sheep, and swine.

Air sacculitis of turkey poults became an extremely serious problem during 1964. Early in the year, transmissible enteritis of poults and chicks was the cause of large losses. Later in the season, this condition was effectively controlled by the use of drugs.

Seven cases of equine encephalomyelitis were confirmed in horses. Abortions due to equine rhinopneumonitis virus were confirmed for the first time.

The following table illustrates the most common diseases in each animal species. The figures represent the number of premises on which the conditions were diagnosed, not the number of individual animals affected (1963 figures in brackets).

Cattle:

Blackleg	54	(53)
Colibacillosis	37	(20)
Johne's Disease	9	(7)
Lungworms	5	(7)
Malignant oedema	35	(43)
Mastitis	47	(86)
Mixed Clostridium	10	(22)
Mucosal Disease	10	(11)
Pneumonia	105	(113)
Pulmonary emphysema	15	(9)
Salmonellosis	7	(4)
Scours	28	(49)
Vitamin A Deficiency	32	(35)
White Muscle Disease	19	(6)

Sheep:

Enterotoxemia	6	(4)
Pneumonia	12	(22)

Canine:

Distemper	22	(13)
Inf. Canine Hepatitis	8	(12)
Nephritis	5	(5)
Pneumonia	6	(5)

Mink:

Aleutian Disease	9	(8)
Distemper	7	(7)

Swine:

Anaemia	27	(17)
Atrophic Rhinitis	16	(13)
Enteritis	50	(42)
E. Coli Infections	81	(37)
Encephalitis	19	(.......)
Erysipelas	43	(24)
Gastro enteritis	54	(48)
Infectious serositis	54	(31)
Mulberry Heart Disease	43	(38)
Necrotic Enteritis	24	(30)
Oedema Disease	30	(54)
Pneumonia	152	(104)
Salmonellosis	21	(19)

Poultry:

Air Sac Infection	190	(118)
Chronic Respiratory Disease	117	(86)
Transmissible Enteritis	122	(70)
Capillaria worms	38	(35)

Special Investigations

During the course of routine specimen examination and farm visiting, certain diseases are diagnosed or suspected which require more detailed investigation. The following special investigations were undertaken during 1964.

Equine Viral Hhinopneumonitis
Virus Pneumonia of Pigs
Enterotoxemia in Cattle
Mercury Poisoning in Pigs
Brucellosis in Swine
The Toxicity of 2-4-D and M.C.P.A. to Swine
Vibriosis in Beef Herds
Porcine Encephalomyelitis
Infectious Serositis of Swine
Leptospirosis
Mastitis (a) Bulk tank sampling survey
  (b) Herd control pilot program
Commercial Laying Flock Mortality Survey
Enterotyphilitus in Broiler Chicks
Mycoplasma in Air Sacculitis of Poults
Necrotic Enteritis in Turkeys and Chickens
Chronic Respiratory Disease Investigations
Avian Encephalomyelitis Survey in Chicken Breeding Flocks

Serology

The following chart outlines the serological tests conducted and includes sera sent to the Alberta Public Health Laboratory for leptospirosis testing.

	Bovine	Porcine	Equine	Buffalo	Canine	Poultry
Brucellosis Provincial	2,498	384	......	......	......	......
Brucellosis Federal	7,231	......	......	342	......	......
Vibriosis Mucus	759	......	......	......	......	......
Leptospirosis	72	43	3	......	......	......
P.P.L.O.	......	......	......	......	......	221
Pullorum	......	......	......	......	......	61
Newcastle	......	......	......	......	......	51
Total	10,560	427	3	342	1	333
Grand Total						11,666

The number of samples submitted for the Brucella test continues to decrease as the Health of Animals Branch continue their work in the Federal control areas. The percentage of positive reactors to the Brucella tests was .85%. Brucella tests at the Auction Markets amounted to 1,430.

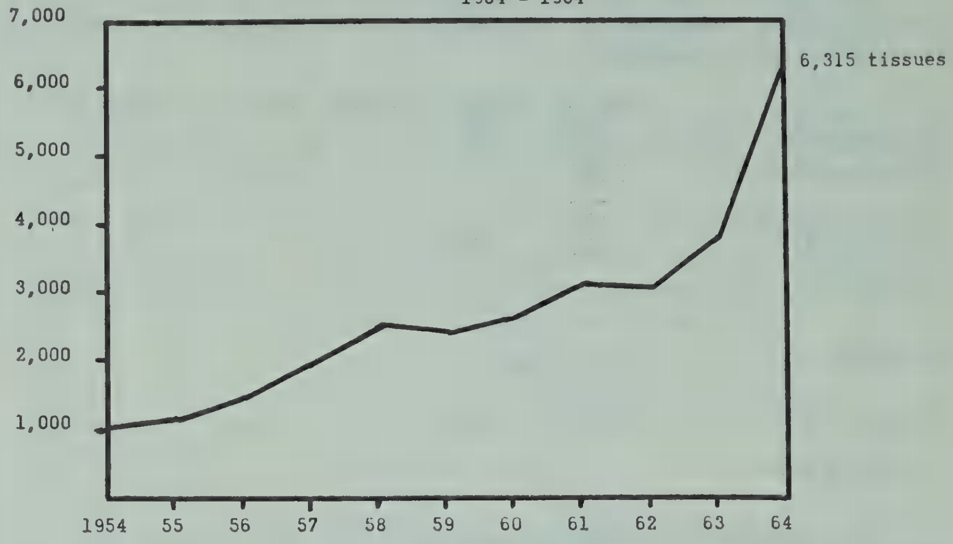
The mucus agglutination test for vibriosis was conducted on 759 specimens and 199 were found positive. Cattle from 58 farms showed reactions.

Histopathology Section

This section functions as an important adjunct to the diagnostic services which are offered by the laboratory. Characteristic pathological changes are produced by most disease conditions, and frequently may be recognized only by a microscopic examination of the tissues. In certain virus diseases, such as distemper in mink and dogs, infectious canine hepatitis, virus enteritis of mink and cats, virus pneumonia of swine, etc., histopathological work is essential in order to arrive at a positive diagnosis. The identification and classification of the many types of tumours which are encountered in animals provides further scope for the micropathologist.

In addition to the histopathological work, this section produces photographic slides, prints, and colour transparencies for use within the Branch, as well as preparing and mounting gross specimens for display and educational purposes.

During the year, 6,315 tissues were processed, from which approximately 6,800 sections were prepared and examined under the microscope. This represents a marked increase (63%) in the number of examinations over those of the previous year. The following chart provides a graphic portrayal of the increase in work-load over the past 10 years.



HISTOPATHOLOGY
Tissues Sectioned
1954 - 1964

DOMESTIC ANIMALS

Species	Tissues Processed
Bovine	1,299
Canine	852
Equine	183
Feline	439
Porcine	1,583
Ovine	179
Miscellaneous (includes zoo animals, laboratory animals, and wildlife)	296
Total	4,831

POULTRY

Species	Tissues Processed
Chickens	969
Turkeys	75
Miscellaneous (includes caged birds, zoo specimens, game birds)	121
Total	1,165

FUR-BEARING ANIMALS

Species	Tissues Processed
Mink	256
Chinchilla	63
Total	319
Grand Total	6,315

Neoplastic conditions (tumours) accounted for 450 of the submitted tissues. Of these, 258, or approximately 57%, were found to be malignant.

MICROBIOLOGY SECTION

(a) Bacteriology

Most of the animal and poultry accessions were routinely examined for pathogenic bacteria. The bacteriology section received 3,697 specimens from the animal pathologists and 6,225 from the poultry pathologists. These examinations included bacteriological, serological, microscopic, chemical, animal inoculation and other procedures. The following table illustrates the work performed.

Bacterial Examinations	5,568	Urinalysis	54
Fecal Examinations	453	Mastitis Tests	146
Blood Counts	52	Cuboni Pregnancy Tests	8
Skin Scrapings	104	Serological Tests	3,537
Total Specimens Received			9,922

Other specimens examined included:

Milk Samples	4,706	Intestinal Contents	133
Fluff Samples	674	Miscellaneous	179
Media used (whole laboratory)	Plates		31,250 cc.
	Liquid		187,000 cc.
Vaccine and Bacterin Production			20,586 cc.
Experimental Animals Inoculated (whole laboratory)			2,220
Guinea Pigs	346	Pigs	45
Mice	746	Cattle	1
Turkeys	100	Hamsters	20
Chickens	926	Quail	31

The chart below shows the work done on reproductive diseases with findings from fetus examinations and vibrio tampon tests.

A breakdown, by species, of the work accomplished is presented in the following table:

Fetuses	Total	Vibrio	Brucella	Strep	Coryne	Others	Negative
Bovine	266	15	2	3	9	2	235
Porcine	20	......	......	......	......	......	20
Ovine	5	......	......	......	......	......	5
Equine	17	......	......	......	......	5*	12

*Five equine fetuses representing two premises were infected with equine viral rhinopneumonitis based on gross and histopathology, serology and virus isolation.

A total of 759 vibrio tampons were examined with positive reactions in samples from 58 premises. In most cases these are in addition to diagnoses based on isolation of the organism from fetuses.

(b) Mastitis Testing

In this first full year of mastitis testing 4,706 milk samples were examined by the California Mastitis Test, by microscopic examination, and by culture. Once again Staphylococcus was found to be the commonest organism present in mastitis samples and was present in roughly 15% of cases. Streptococcus was the second most common isolate while other organism were found occasionally.

During the summer 680 bulk tank samples were collected at fluid milk processing plants located in various centres in the province. These were tested by the California Mastitis Test and by microscopic examination in an effort to determine the leucocyte levels as a guide to making recommendations for, and setting up a pilot program for the control of mastitis. A pilot mastitis control program was begun in the autumn with the intention of continuing and expanding it as time and facilities permit.

(c) Virology

The virology laboratory handled an increased number of specimens during the year reaching a total of 764 compared to 557 the previous year. It was found necessary to employ an additional technician to assist in the work. The table below gives a breakdown of the examinations made and the isolations obtained.

Disease Suspected	Examinations	Isolations
Infectious Laryngotracheitis	13	......
Infectious Bronchitis	91	16
Transmissible Enteritis	58	25
Newcastle Disease	20	......
Mycoplasma Infections	307	134
Avian Encephalomyelitis	4	......
Psittacosis	6	......
Ornithosis	18	1
Infectious Synovitis	4	......
Equine Encephalomyelitis	3	......
Ulcerative Enteritis	3	......
Miscellaneous	14	1

In addition experimental projects using nearly 4,000 egg embryos and baby chicks were conducted in the virus lab as well as a virus pneumonia project involving 34 baby pigs.

Parasitology

Parasites continued to be of importance to livestock producers despite management improvements and prophylactic measures. During 1964, parasites of various kinds were found to be present in 266 animal and in 234 poultry submissions.

Among farm animals, pigs were the most seriously affected, often carrying very heavy roundworm burdens. Calves were occasionally submitted having suffered a fatal verminous pneumonia brought on by lungworms.

Routine equine fecal examinations carried out remind us of the importance of strongyle worms in the horse.

In poultry, capillaria worm infestations and coccidiosis were the two most serious parasitic diseases.

In the fall we received a fair number of meat portions from game animals containing tapeworm cysts.

Toxicology

A total of 807 laboratory specimens were submitted for toxicological examinations. Of these, 418 were animal and poultry specimens from cases of suspected poisoning. The remainder consisted of water and feed samples which were suspected of producing harmful effects in livestock. Strychnine, arsenic, mercury, and lead were the most frequently found poisons.

Correspondence and Communications

Full use of the services of the Veterinary Branch requires correspondence with veterinarians, livestock owners or their agents concerning diagnoses and recommendations, as well as presentations at various meetings.

Such communications included: (1963 figures in brackets)

Letters	27,618	(27,582)	Radio & TV Interviews	30	(23)
Telegrams	133	(187)	Transparencies & Slides	210	(150)
News Releases	24	(27)	Photographic Prints	175	(100)
Film Showings	6	(12)	*Scientific Papers	3	(10)

*(1) Ballantyne, E. E.—Decontamination of Foods in Nuclear Warfare—Proc. Nurses Course, Alberta C. D. School.

(2) Carlson, H. C., and Whenham, G. R.—Entero-typhlitis of Broiler Chicks—C. V. J. 5:168 (1964).

(3) Chalmers, G. A., Vance, H. N., and Mitchell, G. J.—An Outbreak of Epizootic Hemorrhagic Disease in Wild Ungulates in Alberta—Wildlife Disease, Sept., 1964, No. 42.

Several thousand bulletins on veterinary subjects were distributed, in addition to which there were a number of presentations by staff veterinarians to various farm meetings.

Report of the Agricultural and Vocational Colleges Branch

J. E. HAWKER, B.Sc., B.A., P.Ag., Director
J. E. BIRDSALL, M.Sc., P.Ag., Principal, Olds College
W. S. Baranyk, B.Sc., B.Ed., P.Ag., Principal, Vermilion College
M. H. JAQUE, B.Sc., M.Ed., P.Ag., Principal, Fairview College

For the 1963-64 term, students were graduated from Olds College on June 26th, from Vermilion on July 3rd, and from Fairview June 24th, 1964. On these dates Diplomas of Graduation or Certificates were presented as follows:

	Olds	Vermilion	Fairview	Total
Agriculture	69	33	10	112
Automotives	*N/O	N/O	9	9
Clothing and Design	9	N/O	N/O	9
Commercial	18(15)**	24(20)**	N/O	42(35)**
Home Economics	N/O	8	N/O	8
Total	96	65	19	180

*Not Offered

**Certificates Only

The total of 180 graduates is 29 above the total of 151 graduated in 1963.

The annual Staff Conference was held April 1st and 2nd at the Olds College. The greater part of the time was spent in reviewing and determining required subjects for areas of major study, prerequisite subjects, depth of subject matter, subject outlines and testing procedures. Mr. J. E. Birdsall presented a paper on the problem of the slow learner. The Director chaired a session during which the relationship of business education to agriculture, horticulture and other courses was discussed. In the brief time available some discussion took place on the future of women's courses.

During 1964 there were fifteen instructional staff changes. Of these six resigned to take other employment, one retired, one left to attend university for a five year period, two were granted leave for professional improvement and five were added as a result of new courses being offered. The transfer of Mr. B. J. Godwin from Vermilion to Olds to head up the new horticultural course was confirmed. Mr. L. G. G. Seath returned to Vermilion, Mr. J. H. Warne to Fairview and Mr. W. J. Collin to Olds College after successfully completing a year's post-graduate training at the University of Alberta.

Mr. J. A. R. Palin of the Vermilion staff and Mr. A. E. Keller of Fairview were granted leave of absence for professional training in the fall of 1964.

The Horticultural Course at Olds is now in its second year and the first graduates will finish in the fall of 1965. Twelve students were admitted last year. One of the two young ladies enrolled got married and two of the men left the college because of infractions of residence regulations. Fifteen were admitted in 1964 and one of these left. This leaves a total of 23 on course. In the summer of 1964 there were 37 positions available to the twelve trainees then on course. The Automotives Course previously offered at Fairview has been replaced by a Motor Mechanics Course. Both this new course and the Welding Course at Fairview are now offered in co-operation with the Apprenticeship Training Board and lead directly to apprenticeship.

BOARD OF AGRICULTURAL EDUCATION

The regular meeting of the Board was held in Room 312 of the Legislative Building at 1:30 p.m. on April 27th, 1964. As chairman, the Hon. H. E. Strom stated that the position of the colleges was considerably stronger this year than it had been for some time. He felt that the concept of regional colleges was now accepted by the government. He expected that further progress in construction at the colleges would continue.

In discussing the annual report, the Director stated that, for the 1961-62 and 1962-63 fiscal years, operating costs of the three colleges were defrayed as follows: Provincial Government 39.25%; Federal Government 36.4%; College Revenue 24.35%.

During a discussion on enrolment, the Director stated that increased attendance due to the introduction of Agri-business type courses, as represented by the new Horticultural Course at Olds, would tend to stabilize the operation of all three colleges.

In reply to concern expressed over the loss of one year in the construction program for the colleges, the Director pointed out that the delay was due to pressure of work on the Department of Public Works in the planning stages. Hon. H. E. Strom stated that the government now hopes to handle construction in such a way as to have final cost estimates come much closer to final costs than has previously been the case.

In commenting on courses of study the Director pointed out that while planned, no high school academics were taught at the colleges in the 1963-64 term since it was too late in 1963 to hire qualified staff. However, he stated that a start had been made at the Vermilion college in the spring session 1964.

With reference to instructional staff doing extension work, the Director said that, in spite of the sessional system reducing the time instructional staff could devote to extension work, he had invited the Extension Branch to request limited assistance as required throughout the year.

In answer to a question by Mr. Putnam, the Principals pointed out that all scholarship and prize money was being used to good purpose. In addition to advertising mentioned in the Director's Report it was pointed out that additional advertising was being done. Vermilion aired a one half-hour T.V. program over the Lloydminster station every six weeks. Every two weeks Fairview had a half-hour program over the Dawson Creek T.V.

station. Staff members at Fairview visited all high schools in the Peace River area during the year. Mr. Birdsall advised that Olds is hoping to have regular radio programs aired during the coming year.

In commenting on high school career programs Mr. Birdsall felt that there is more interest being shown by students in careers in agriculture. He also thought that personnel from the colleges were better able to counsel high school students in this respect on the average than could district agriculturists.

With regard to Golden Anniversary celebrations special mention was made of the bronze plaques provided by the government and suitably mounted at Olds and Vermilion. The Alumni Association erected a plaque in honor of the late A. T. Kemp at the Olds College.

In discussing the Commercial Course, the Director stated that each student completing the course received a certificate which listed their marks in each subject, speed in shorthand and typing and also a rating based on tests given by the Provincial Department of Personnel. Students with high standing are also granted a diploma in commercial work. Mr. Baranyk reported that suitable placement of graduates in commercial work has presented no problem. Mr. Birdsall felt that an agriculture-commercial combination might be particularly valuable for young men in various business situations directly connected with agriculture.

The 1964-65 Term

An arrangement has been completed with the Apprenticeship Training Board whereby courses leading to apprenticeship were offered at Fairview only for students in Welding and Motor Mechanics.

Due to construction and renovation of buildings, fall registration in agriculture at Olds and more particularly Vermilion was somewhat restricted.

Assistance Granted to Students at Each College Under Terms of the Students' Assistance Act for the 1963-64 College Year was as follows:

	Olds	Vermilion	Fairview	Total
Loans	$1,450.00(5)[1]	$2,650.00(11)[1]	$1,465.00(6)[1]	$5,565.00(22)[1]
Loan Remissions	217.50(3)[1]	440.00(7)[1]	350.00(5)[1]	1,007.50(15)[1]
Prizes ($50 each)	450.00(9)[1]	300.00(6)[1]	Nil (0)[1]	750.00(15)[1]
Total	$2,117.50	$3,390.00	$1,815.00	$7,322.50
Actual Number of Students Assisted	13(11)[2]	13(16)[2]	6(10)[2]	32(37)[2]

[1] Number of Students

[2] 1962-63

ENROLMENT AT EACH COLLEGE FOR THE WINTER, SPRING AND FALL SESSIONS, 1964 WAS AS FOLLOWS:

	OLDS			VERMILION			FAIRVIEW			TOTAL		
COURSE	Winter	Spring	Fall	Winter	Spring	Fall	Winter	Spring	Fall	Winter	Spring	Fall
Agriculture	150(130)[1]	33(N/O)[1]	106(104)[1]	121(134)	N(0)	84[3](118)	35(32)	N(0)	69(33)	306(329)	33(N/O)	259(255)
Home Ec.	N(0)[2]	N(0)	N(0)	8(8)	8(8)	8(8)	N(0)	N(0)	N(0)	8(8)	8(8)	8(8)
Commercial	17(13)	17(13)	21(20)	27(13)	25(13)	30(27)	N(0)	N(0)	22(N/O)	44(26)	42(26)	73(47)
Clothing	9(13)	9(13)	13(10)	N(0)	N(0)	N(0)	N(0)	N(0)	N(0)	9(13)	9(13)	13(10)
Horticulture	12(N/O)	N(0)	26(12)	N(0)	N(0)	N(0)	N(0)	N(0)	N(0)	12(N/O)	N(0)	26(12)
Motor Mech.	N(0)	N(0)	N(0)	N(0)	N(0)	N(0)	10(6)	9(6)	9(13)	10(6)	9(6)	9(13)
Welding	N(0)	N(0)	N(0)	N(0)	N(0)	N(0)	11(12)	N(0)	10(5)	11(12)	N(0)	10(5)
Total Voc.	188(156)	59(26)	166[3](146)	156(142)	33(21)	122[3](153)	56(50)	9(6)	110(51)	400(348)	101(53)	398(350)
High Sch. Acad.	N(0)	N(0)	0[4](0)	N(0)	12(N/O)	14(N/O)	36(32)	33(32)	31(36)	36(32)	45(32)	45(36)
TOTAL	188(156)	59(26)	166(146)	156(142)	45(21)	136(153)	92(82)	42(38)	141(87)	436(380)	146(85)	443(386)

[1] 1963

[2] Not Offered

[3] Registration Restricted Due to Student Residence Renovation.

[4] Six students took less than 50% High School Academics and so are listed as Vocational Students.

Maintenance and Construction

At the Olds College, major items of maintenance included installation of a third boiler in the central heating plant, facing the heating plant with concrete blocks, moving and relocating the large garage as a farm and maintenance machine shop and enlarging one classroom in the mechanics building.

Construction of the new Metalshop providing facilities for gas and electric welding and sheet metal work plus classrooms and offices was virtually complete at year's end. A fifty foot addition was added to one greenhouse and a good start was made on a grounds and horticultural headquarters building.

Major maintenance at the Vermilion College included modification of the existing plant science building to provide a small, temporary greenhouse, major renovation of the exterior of the Mechanics Building, relocation of roads and storage areas, extensive stucco repairs on a number of buildings, installation of fire doors in student residence and a start on a very extensive renovation of this building.

Construction of the first phase of the Animal Science building was nearly complete at year's end and a start made on construction of three classrooms in the Mechanics Building. All power, telephone and bell wiring are in the process of going underground.

At Fairview the maintenance jobs included conversion of a number of rooms from storage and office accommodation to student residential rooms, a general interior repainting, improving lighting in most classrooms and laboratories and the conversion of the former cooking laboratory and sewing room into a commercial classroom and horticultural laboratory respectively.

Construction of a new Gymnasium and Agricultural Mechanics Building was completed. The latter temporarily houses a new maintenance shop.

Programs Beyond the College Term

In addition to the regular program of courses extensive use was made of the facilities of each college for meetings and programs of varying length.

Summer programs included one week 4-H Club programs at Fairview and Vermilion, with 4-H Elimination Week and two one-week 4-H Programs at Olds. Other groups accommodated at the colleges included: Hog Automation Days and a Sheep School at Olds, Artificial Breeding Association, Western Hog Growers' Association, Alberta Women's Institutes, F.U.A., Farm Women's Week, 4-H Club Meetings, Alumni Reunion, Horticultural Meetings, 4-H Leaders' Conferences, Dairy Field Days, Chemical Weed Control Schools, Swine Building Meetings, Municipal Officer and Assessor Course, Livestock Feeder Associations, Grazing Associations, Nurses' Aides Course, Public School Teachers' Convention, Fire Officers Training Courses, Fair Camp Week and others.

Appreciation

Again during 1964, the colleges enjoyed the very substantial support of a large number of commercial companies, farm and other organizations and individuals. To all of these people, many of whom have encouraged the work of the colleges for many years, the Department of Agriculture expresses its sincere appreciation.

Other departments of the Provincial Government, the Federal Government and the University of Alberta have been most helpful. Their assistance is gratefully acknowledged.

The excellent co-operation and effort, often far beyond the call of duty, of college principals and their staffs during 1964 has been very much appreciated.

OLDS AGRICULTURAL AND VOCATIONAL COLLEGE

The year 1964, was what may come to be considered a fairly normal year in the life of the college. Enrolment increased to a new high for recent years. Necessary adjustments were made in the new teaching program, the teaching staff was slightly increased and administrative procedures were altered somewhat to meet changed needs. One major building, a metals shop, was constructed as well as several minor construction jobs being carried out. In spite of the longer college year various groups were permitted to use the facilities during the summer, keeping them in full use for six weeks in July and August.

Enrolment and Instruction

This was the first year the college operated on a sessional basis for the full year. Enrolment for the year was as follows:

	Sessional Enrolment		
	Winter/63	Spring/64	Fall/64
First session Agriculture	47	.....	64
Second session Agriculture	53	13	14
Third session Agriculture	24	17	23
Fourth session Agriculture	30	3	5
First year Horticulture	12	.....	15
Second year Horticulture	.....	.....	11
Clothing and Design	9	9	13
Commercial	16	16	21
Total	191	49	166

Peak enrolment, as could be expected, was in the winter session while the lowest was in the spring when horticultural students had left and there was no freshman class in agriculture. In the fall session the enrolment was high but below the winter session. The spring session in 1965 will have an increased enrolment through the addition of a course in Land Appraisal and further attempts will be made to obtain students for a freshman class in agriculture. There will also be a small class in high school academics which will increase the enrolment.

The new program in agriculture was carried out with a minimum of serious problems. The greatest has been that of class size. Large classes increased teaching difficulties and necessitated enlargement of one classroom. One graduate student was employed starting December 1st as a laboratory assistant. Employment of additional such help will probably be necessary in 1965.

The change of a five day week with students being permitted to go home most week-ends, if they so desire and distance permits, appears to have reduced discipline problems. This, along with the extended college year, has also resulted in a more contented and stable staff.

High School Academics

It was not found possible to introduce High School Academics as fully as had been outlined in the calendar. During the fall session three students took Science 20 on a classroom basis while ten took other subjects on a correspondence basis. Registration for the winter session, 1965, indicated there would be a substantial increase in students taking high school subjects on a classroom basis. Mathematics 30 and Chemistry 30 will be offered in the winter and spring sessions.

Post Graduate Specialization

Three students enrolled as post-graduate students in Farm Mechanics in the winter session. At the end of the year a few students planned to return for the winter session 1965 on a post-graduate basis.

Special Lectures

During the winter session special lectures were given by J. W. Edmunds, Apiary Supervisor; L. C. Usher, 4-H Supervisor; W. H. T. Mead, Livestock Commissioner; Dr. C. F. Bentley, Dean, Faculty of Agriculture, University of Alberta; D. H. McCallum, Dairy Commissioner; G. Purnell, Director, Farm Economics Branch; a panel from the Lacombe Experimental Farm headed by the Superintendent, Mr. J. Stothart and Miss Ellis of the Canadian Cancer Society.

Little Royal and Achievement Day

The thirty-second annual Little Royal and Achievement Day was held on Saturday, March 14th, with about sixteen hundred people in attendance. The program followed the traditional pattern with the display of livestock training and showing by agricultural students and the dress review by students in the Clothing and Design Course being the high-lights. A preview of the dress review was staged on Friday night as well as two showings on Saturday. There were displays in all other phases of college courses.

Judge of the Little Royal was Mr. D. R. McPherson, District Agriculturist of Hanna, a graduate and former instructor at the College. Master showman was Mr. Greg Kesler of Rosemary.

Since the Little Royal portion of this program will not be held again, it should be recorded that this event, started in 1934 by Mr. D. A. Andrew, Livestock Instructor, has been very successful as a public relations effort and in the early years as a teaching aid. With the shift of emphasis away from the show-ring in livestock judging and with the change of program at the College, a change of emphasis at the achievement day was deemed necessary.

Graduation

At graduation on June 26th, 1964, Mayor J. G. Grant MacEwan of Calgary delivered the address to the graduating class. Mr. A. W. Beattie, District Agriculturist from Calgary, represented the Department of Agriculture and Kenneth Lehr of Medicine Hat was valedictorian. Prizes for proficiency in various fields were awarded to eleven students. Diplomas and certificates were awarded as follows:

	Diplomas	Certificates	Total
Agriculture	69	......	69
Commercial	*3	15	18
Clothing and Design	9	......	9
Total	81	15	96

*Commercial students who excelled in all subjects received diplomas.

All received certificates.

Extension Activities and Adult Courses

During the year members of the staff participated in extension activities in central and southern Alberta. A major phase of their extension work was done in co-operation with District Agriculturists in the surrounding area. Members of the staff participated in a winter extension program arranged by the Olds extension office with college facilities being used. Hog Automation Days, a two-day program of lectures and equipment displays, was a particularly successful venture with about 800 people attending.

Four 2-week welding courses for farmers were held between January 27th and March 5th. A total of fifty-six students enroled and completed the course.

A three-day sheep school arranged by the livestock branch was attended by fifteen active participants and about forty on an observer basis.

The facilities of the college were used by local extension workers for various group and committee meetings as well as by various agricultural groups such as the F.U.A., the Aritificial Breeding Association and the Western Hog Growers' Association.

4-H Events

The college continued a strong association with 4-H. About fifty percent of the students have a 4-H background; a campus 4-H Club operated throughout the year; two provincial 4-H Club weeks and the Provincial 4-H Eliminations were held at the college; two student judges assisted with judging at the Provincial Junior Seed Fair and numerous district 4-H functions were held at the college.

Other Events

The following is a list of other events held at the college during the year:

Month	Event	Attendance
April	—Alberta Women's Institute Constituency Tea	100
June	—Alberta Women's Institute Constituency Conference	80
June	—F.U.A. District Convention	100
July	—Alberta Women's Institute Girls' Club Week	150
July	—Farm Women's Week	100
July	—First 4-H Club Week	140
July	—Second 4-H Club Week	180
August	—Provincial 4-H Eliminations	185
August	—Summer Alumni Reunion	300
August	—Horticultural Week	90
November	—Fall Alumni Reunion Dance	225

In addition to the events listed there were a number of afternoon and evening gatherings of 4-H Clubs, farmers and other groups. These, together with the Little Royal and Achievement Day, account for about six thousand people using the college facilities. This is in addition to the regularly scheduled courses and the many visits from individuals and small groups.

Publicity

To supplement head office publicity, a weekly release was sent to all weekly and daily papers in central and southern Alberta as well as to radio and television stations in the area. At the end of June a radio program was started with Mr. John Nielson of the college staff making three 5-minute tapes each week. These were supplied to the radio stations at Red Deer and Drumheller. Both stations aired the programs at a fixed time each Monday, Wednesday and Friday under the title, "College Calendar". Plans were made to extend the program to other stations in 1965.

Members of the staff spoke at a number of Career Events in high schools and to several Home and School Associations during the year.

Instructional Staff

Mr. H. J. Armstrong retired from the position of Instructor in Metal Work in February after over thirty-eight years of service with the Department of Agriculture. Starting as Farm Foreman at the Vermilion School of Agriculture, he later became Metalwork Instructor. In 1941 he transferred to Olds where he served with one short break for twenty-three years. Mr. Armstrong was succeeded by Mr. L. B. Seeger of Edmonton.

Mr. A. A. Qually joined the staff on January 1st, as Recreation Supervisor and Assistant Dean of Men.

Staff leaving during the year were Miss G. A. Daley, Clothing and Design, after nearly ten years; Mr. E. N. Thompson, Instructor of Academics, after eight months; and Mr. W. S. Morrison after one year. Mr. Morrison relieved while Mr. Collin was on educational leave. Miss Daley was replaced by Miss Marlene Nixon of Edmonton and Mr. Thompson by Mr. W. F. Arthur of Sundre.

The plant science department was increased from three to four instructors with the addition of Mr. M. J. Tsujita, M.Sc., to the staff.

Student Placement

With the introduction of courses in Commercial and Clothing and Design and increased demand for Agricultural graduates in agri-business, job placement for students has assumed greater importance than in the past. During the year arrangements were made for prospective employers to interview students, a speaker from the National Employment Service to speak to and interview students in Commercial and Clothing and Design, and for a representative of the Personnel Office of the Alberta government to test and accept applications from Commercial students. These and other placement efforts bore fruit by way of actual placement of practically all who wanted employment and of satisfied employers. The first class in the course in Vocational Horticulture will finish in 1965. This will add to the number of people to be placed but indications are that there will be a keen demand.

Course in Vocational Horticulture

Following the completion of their first year at the end of March, the twelve students enroled and the first class in horticulture were placed with co-operating employers to obtain on-the-job training required for completion of the course. There were three jobs available for every student to be placed. Eleven of the students returned in the fall, one young woman having married. In November two others were suspended for liquor offences.

Sixteen students were selected by the advisory committee from twenty-eight applicants to form the first year class for 1964-'65. Three later withdrew for personal reasons.

Grounds and Plots

Plans for re-landscaping the campus were started by the class in horticulture. A beginning was made during the summer in implementing these plans. Major emphasis was given to the development of a picnic area east of the student residence. Regrading and renovating of lawns together with the removal of a few old trees and planting of new ones also began to change the appearance of the campus.

The new greenhouses with 2400 square feet of space facilitated the production of bedding plants for the grounds.

In the plot area, two acres were set aside for vegetable trials being carried for the Provincial Horticultural Station at Brooks. A forage varietal trial was grown for the Lacombe Experimenal Farm and cereal, forage and root crops were grown for teaching purposes. A new plot of breeders' seed of Creeping Red Fescue was established and a quantity of seed was harvested from the old one.

Yields of vegetable crops were below average and not adequate to fully supply the residence. It will be necessary to purchase potatoes and some other vegetables before the 1965 crop is available.

Maintenance and Construction Program

During the year one major structure, a new metals building, was constructed. At the end of the year the shops were ready for use and only furnishings of lecture rooms remained to be added. In addition, a fifty-foot extension was made to one greenhouse and a start was made on the construction of a headquarters for horticulture. When completed it will provide an office, tool room, potting room and equipment storage. Further work was done on equipping the greenhouses. A maintenance storage shed, a bath house connected to the men's residence, and a new sewage lift station were also constructed.

A third new boiler was installed in the heating plant, completing the replacement program, and the exterior of the building was faced with cement blocks.

Progress was made in refitting a large garage moved in 1964 to provide machine shop facilities for the college, and one classroom in the mechanics building was enlarged to accommodate large classes.

A normal program of repairs and redecoration of buildings was carried out.

Mr. L. A. Allen, maintenance supervisor, resigned on August 21st and the position was filled, effective November 1st by Mr. E. O. Bryant.

The College Farm

Early rains delayed spring seeding but the crops came on to mature well. Participation was intermittent throughout the growing season and included hail on a few occasions. No appreciable damage was done. The first cutting of hay was average but the second cutting was light. The cereal crops that were not damaged, were slightly above average. A wet fall made it difficult to get the grain dry enough to harvest.

Summary of Crops Harvested:

Crop	Acreage	Yield
Wheat	8	425 bus.
Oats	81	5,580 bus.
Barley	81	4,860 bus.
Hay	140	165 tons
Silage	33	100 tons
Pasture	150	.....

Livestock

The cattle and sheep were able to graze late into the fall on aftermath hay and stubble which took them into the winter in fairly good condition.

A Shorthorn bull was purchased for use in the Shorthorn herd; a Suffolk ram was bought for the Suffolk flock and a small flock of Dorset Horned sheep, comprising twelve ewe lambs and one ram lamb, was purchased from Colony Farms, Essondale, B.C.

Two Yorkshire boars were procured as sires for the swine herd. All sows are R.O.P. tested and only those scoring 80 or higher are retained in the sow herd.

Performance testing programs were continued in the Shorthorn and Holstein herds as well as in the sheep flock.

The following is an inventory of livestock as of December 31st, 1964:

Holsteins	39
Shorthorn	98
Yorkshire swine	180
Sheep	55
Light Sussex Poultry	305

Farm Sales for year ending December 31st, 1964, were as follows:

Livestock	$22,620.54
Dairy products	6,000.18
Poultry and Eggs	1,326.47
Vegetables	677.36
Total	$30,624.55

Equipment and Replacements

A new flail-type manure spreader was purchased to replace an older unit.

The construction of field fences and corrals was continued, along with the installation of frost-proof waterers for cattle and sheep.

Teaching and Administrative Staff at End of Year, 1964

J. E. Birdsall, M.Sc., P.Ag., Principal, Community Organization
L. Seeger, Metals
Miss T. Graham, Dietitian, Dean of Women
Mrs. L. A. Thomas, C. N., School Nurse, Home Nursing, Assistant Dean of Women
R. P. Warrington, F.R.G.S., Dean of Men, Vocational English
A. A. Qually, Assistant Dean of Men, Supervisor of Recreation
Miss M. R. Nixon, B.Sc., H.Ec., Clothing and Design
Mrs. B. Gough, Commercial
W. M. Burton, B.S.A., P.Ag., Farm Mechanics
G. B. Harrison, B.S.A., P.Ag., Farm Structures
R. G. McFadyen, B. E., Farm Mechanics
S. B. Wilton, B.Sc., P.Ag., Animal Science
H. W. Sutherland, B.Sc., Farm Management
G. A. Ogston, Farm Manager, Animal Science
W. F. Arthur, B.S.A., Academics
M. J. Tsujita, M.Sc., Plant Science
W. Collin, B.Sc., Plant Science
B. J. Godwin, B.Sc., B.Ed., P.Ag., Horticulture
J. Dennington, N.P.D., Horticulture
J. R. Nielson, B.Sc., Animal Science
Mrs. D. Moritz, Librarian
H. Giesbrecht, Accountant
Mrs. K. M. Chesney, Secretary
Mrs. D. E. Sutherland, Stenographer
E. O. Bryant, Maintenance Supervisor

VERMILION AGRICULTURAL AND VOCATIONAL COLLEGE

The new curriculum at the Vermilion Agricultural and Vocational College gained stability and more popular support during 1964. The very major task of up-dating the physical facilities was undertaken, and will for some time to come result in upheavals of normal classroom routine. Students and staff appreciate the efforts being made to improve the over-all facilities of the college and have co-operated in every respect, so that classes have continued with only very minor adjustments.

Commercial and Home Economics students have continued for three continuous sessions, while courses in Agriculture were offered in the Fall and Winter Sessions only. There is a growing demand, by students in Agriculture, for a Spring Session in Agriculture. Should the number of students warrant this service then this need will be met promptly.

Due to a major renovation program for the student residence, it was necessary to limit rather severely the number of students registering in the Fall Session of 1964, because a number of student rooms were involved, and the central area of the building was in a state of semi-demolition. The unusually wet fall and delayed harvesting conditions also were a factor in the general enrolment picture.

During the course of the year a number of staff changes occurred. Miss Lois Olsen of the Home Economics staff decided on marriage as a career, and Mr. J. A. R. Palin was granted leave for professional improvement. Early in November the whole college staff met to pay tribute and farewell to a most valuable and faithful servant, Mrs. F. Richardson, formerly Mrs. K. I. Bell, college secretary, Mrs. Richardson was on staff from 1928. Some members of the current staff knew her when they were students at the college. Mr. Wayne Taylor resigned to continue studies toward a Masters Degree in Sociology.

Academic Subjects

In the Spring Session, a number of Grade XII subjects were offered to graduates and adult students. A total of thirteen students registered and the final results were most gratifying. The calibre of student was very high. Each was highly motivated due to former experiences. Mr. Murray Gratz and Mr. Wayne Taylor, permanent members of the staff, taught Chemistry 30 and Mathematics 30 respectively. We were pleased to obtain the temporary services of Mrs. Kibblewhite, who taught English 30.

Liaison with the Department of Education, and particularly the High School Inspector and Public School Superintendent, is close and cordial. The experience in academics on a sessional basis was most encouraging and this service will be continued, since it provides an opportunity for the older student to get back into the educational stream.

Special Lecturers and Guest Speakers

The Vermilion College has been very fortunate to be able to obtain guest speakers and subject matter specialists to speak to the various classes. The presentations familiarized students with employment opportunities, the work of government, and industry. The services of the Personnel Administration Department are particularly appreciated. They have made available to us members of their staff who test and evaluate our Commercial students.

The following persons were present during the course of the year to address the students:

Dr. C. F. Bentley, Dean, Faculty of Agriculture, University of Alberta
Mr. J. Doucette, Alberta Government Telephones
Mr. A. B. Weir, Department of Agriculture Solicitor
Mr. L. Dowdell, Canadian National Railways
Mrs. S. Nesbitt, Personnel Administration
Mrs. S. E. Phillips, Personnel Administration
Mr. R. Roy, Canadian Imperial Bank of Commerce
Mr. C. J. Alcorn, Farm Credit Corporation
Mr. T. Herbert, Post Office Department
Mr. H. Bolls, Consumer Co-operatives
Mr. W. D. Sharpe, Department of Revenue
Mr. V. T. Janssen, Junior Activities Branch

The college was also pleased to welcome as a guest the Hon. H. Hays, Federal Minister of Agriculture, and the Official Party of the Vermilion Fair.

Graduation—July 3, 1964

To accommodate all students completing graduation requirements during the course of three sessions, graduation exercises were again held early in July. A Fashion Show, presented by the Home Economics students, preceded the formal exercises. Representing the Alberta Department of Agriculture were Mr. R. M. Putnam, Deputy Minister, and Mr. J. E. Hawker, Director of Agricultural and Vocational Colleges. The Reverend J. H. Bell pronounced the Invocation and Mr. R. Snelgrove, President of the Alumni Association, brought greetings. Guest speaker for the occasion was Mr. R. Hill, Manager, Feed Division, Canada Packers Limited.

Diplomas of Graduation and Certificates were presented as follows:

	Diplomas	Certificates	Total
Agriculture	33	......	33
Home Economics	8	......	8
Commercial	4	20	24
Total	45	20	65

Winners of Major Scholarships and Awards were:

North Western Utilities Prize for General Proficiency in Home Economics —Dianne Whitelock, Hughendon, Alberta.

Hazel Hurt Trophy for General Proficiency in Commercial—Maxine McCallum, Mundare, Alberta.

The T. Eaton Co. of Canada Ltd. Prize for General Proficiency in Agriculture—Lorne Bodnar, Nestow, Alberta.

The Staff Medal was awarded to George Falkenberg of Edmonton for his leadership as Student President and his assistance in the transition from the old to the new in student government matters.

Twenty-three other prizes were awarded to graduating students for various achievements in class work.

Scholarships to non-graduands were awarded as follows:

Craig's Limited of Vermilion for highest standing in the Animal Science Major—W. Brockhoff, Edberg, Alberta.
Imperial Oil Limited, for highest standing in the Farm Mechanics Major —Lyonel Schobert, Doe River, B.C.
The British American Oil Company, for highest standing in the Farm Management Major—Peter Burns, Prince George, B.C.
U.F.A. Co-operative Limited, for highest standing in the General Course —Gordon Gray, South Edmonton.

A large number of bursaries are also made available through the courtesy of generous donors. This encouragement to young people to advance their education and the recognition for achievement are appreciated very highly by both students and staff.

Special Events

Alumni Reunions

Three dances and reunions under the auspices of the V.A.V.C. Alumni Association were held during the year, on March 5th, July 3rd and November 6th. On all occasions large numbers of former graduates attended and had an enjoyable time. The major function was the Rose Ball and Reunion which this year was held in conjunction with the Graduation Exercises. Former students show a keen interest in the College and its development.

Little Royal and Achievement Day

This major college function of the year was held on March 14th. About 1200 parents and interested people were in attendance.

Classrooms were set up to convey to the public the nature of the work done at the college. Guest judges for the "Livestock Show" were Mr. V. T. Janssen, formerly Associate Supervisor of 4-H Clubs, and Mr. S. Duncan, District Agriculturist of Wainwright. In the evening the V.A.V.C. students presented an Operetta, "The Golden Trail", under the direction of Mr. G. A. Boggs, Instructor.

Parents' Week-End

One of the best attended of these functions was held November 21st. Students hosted their parents and gave them a much better idea of what college life is all about. In the evening the students presented a very fine and varied program.

Christmas Closing

December 12th marked the formal closing of the Fall Session. Following the Annual Christmas Banquet, staff, students, donor representatives and guests reassembled in the gymnasium for the presentation of scholarships and bursaries. The students also took this opportunity to honor those of their group who contributed highly to extra-curricular activities. This event provides the donor representatives with an opportunity to meet the successful winners of the scholarships and bursaries made available by the firms they represent.

Non-College Events in 1964

College facilities are made available to organizations and groups for activities of an agricultural or educational nature. These included:

14—4-H Club Meetings
1—District 4-H Public Speaking Elimination
2—4-H Council Meetings
1—4-H Leaders' Conference
1—4-H Field Crops Field Day
1—Dairy Field Day
1—Sheep Shearing School
1—Chemical Sprayer Demonstration and School
1—Swine Buildings School
3—F.U.A. District Board Meetings
1—F.U.A. District Convention
6—Municipal Officers' and Assessors' Classes
1—Alberta A.I. Association Committee Meeting
1—Livestock Feeders' Association Meeting
1—Alberta Grazing Association Executive Meeting
1—W. I. Conference
1—Nurses' Aides Course
1—Vermilion, Vegreville, Wainwright, Teachers' Convention
4—Fire Officers' Training Courses each of one week duration
1—Boys' and Girls' Fair Camp Week
1—4-H Club Week

College staff often participated or assisted in a number of the above activities. Every effort is made to co-operate with the Provincial Extension Service. A very cordial, mutually rewarding relationship exists between the college and Messrs. Morley Douglas, Dennis Berdine and Miss Currie, District Agriculturists and Home Economist respectively. The college staff had the opportunity to assist in Extension work of various kinds. In addition, members of the staff serve as guest speakers at various public events, judges at district horticultural fairs, livestock shows and in a consulting capacity.

Publicity

Mr. K. M. Stone, with the assistance of Mr. E. Horton and Mr. D. Bell, continued with organizing and producing Radio and T.V. programs for the college. The 5 minute program, "Halls of V.A.V.C.", continues on C.K.S.A. daily. Occasional tapes were prepared for C.F.C.W. and "Call of the Land".

The local press and radio have given the college excellent coverage during the course of the year.

Employment of Staff During the Summer

Due to extensive renovation and additional courses offered during the Spring Session, only two members of the staff were available for full summer employment. Mr. G. Daugela worked as an Extension Engineer, Mr. J. A. R. Palin worked with Community Pastures, Mr. J. Hamm returned to his farming enterprise and Mr. L. G. Seath continued with Summer School at the University of Alberta.

The College Farm 1964

1964 was not one of the better years for crop production at the college farm. Spring moisture was good but the mid-summer was dry, and this was followed by very wet harvest conditions, resulting in crop production below the average.

Cropping Program, 1964:

	Acres	Yield
Wheat	6.25	120 bus.
Oats	91.50	2,915 bus.
Barley	12.50	437 bus.
Hay	78	133 tons
Silage	44	150 tons
Fallow	32	
Pasture	70.25	

Vegetables:

	Yield Lbs.
Potatoes	22,940
Turnips	4,552
Carrots	3,700
Beets	2,135
Cabbage	1,705

Livestock Inventory, December 31, 1964:

	Number
Dairy Cattle	42
Feeder Steers	24
Beef Heifers	10
Sheep	77
Swine	60
Poultry	507

Principal Replacements and Improvements to the College Farm were as follows:

Addition of:—Cockshutt 525 Combine
—International Pressdrill
—Automatic Bale Stooker
—Bale Elevator
—Cattle Oiler
—Automatic Waterer for Poultry
—Metal Nests for Poultry House
—Equipment for modernizing Hog Barn

The Cattle Shed was moved and considerable renovation was carried out to corral and yard fences as well as pasture fences.

Farm Sales—January 1, 1964 to December 31, 1964:

Vegetables	$ 793.73
Milk	2,602.41
Cream	1,977.76
Eggs	1,957.30
Poultry	137.35
Livestock for slaughter	8,649.85
Livestock for breeding purpose	1,175.58
Wool, Hides, Misc.	245.06
Total Farm Sales	$17,539.04

Maintenance, College Grounds and Plots

Maintenance work continued on an extensive scale and at a rapid rate. A small greenhouse was added to the present

Plant Science quarters and major redecoration and renovation of the exterior of the Agricultural Mechanics Building was commenced during the summer. This should be completed early in 1965. A new sports field was prepared and will be seeded down in 1965. Roads were adjusted and tile drainage provided for the silo and storage areas for Maintenance and Agricultural Mechanics. Major stucco repairs were made on a number of campus buildings and will be continued in 1965. Interior work is being carried on into the winter as far as renovation and redecorating are concerned. Fire doors were installed in the student residence and further steps are being taken to ensure the safety of the students and public property.

The grounds and plots were maintained to provide an attractive setting for the campus buildings, and for classroom purposes. Large areas of the campus were being evacuated for construction purposes. As a result much landscaping and reclaiming of areas will be done in future years.

The first stage of the Animal Science Building was completed and will be in use during the Winter Session. The Alberta Department of Public Works have undertaken a major program of renovation in the Student Residence and the Mechanics Building. This work will modernize the facilities and provide additional classroom space in the Mechanics Building. The power, telephone, fire alarm and class bell systems are being re-located underground. This phase of work was commenced in the fall and is scheduled for completion early next year.

All work is contributing to a major change in the overall appearance and arrangement of facilities on the V.A.V.C. Campus.

SUMMARY OF COURSES TAUGHT AND ATTENDANCE FOR THE YEAR

Winter Session, 1964:

Agriculture total	121
Home Economics	8
Commercial	27
Total	156

Spring Session, 1964:

Home Economics	[illegible]
Commercial	25
Academics	13
Total	46

Fall Session, 1964:

Agriculture	84
Home Economics	9
Commercial	30
Total	123

The Alberta A.I. Association had requested and the Department of Agriculture has approved a Technician Course for A.I. work. The course is to be offered at the Vermilion College commencing January 5th, 1965.

Registration For the Winter Session 1965

At the end of the year a total of 176 applications were on hand for the Winter Session. With general renovations in the residence in progress, problems in accommodation are anticipated. Students in Agriculture will be crowded. As new rooms are made available the situation will be eased.

The distribution of students is approximately as follows:

Agriculture:	
First Session	22
Second Session	46
Third Session	17
Fourth Session	27
Agriculture and Academics	8
Academics Only	6
Home Economics	7
Commercial	31
A.I. Technician	12
Total	176

Teaching and Administrative Staff, 1964-65:

W. S. Baranyk, B.Sc., B.Ed., P.Ag., Principal, Community Organization
D. W. Bell, Metals
G. A. Boggs, Farm Structures
O. W. Clouston, Accountant
B. H. Coulter, Staff Stenographer
G. Daugela, B.S.A., B.E., Mechanics
H. J. Earle, B.Ed., Vocational and Academic Mathematics and Science
R. M. Gratz, B.Sc.Ag., P.Ag., Animal Science
J. L. Hamm, B.S.A., Farm Motors
Miss M. O. Hancock, Secretary
J. F. Harcus, B.Sc., B.Ed., P.Ag., Animal Science
Miss J. F. Haworth, R. N., Dean of Women—College Nurse, Home Nursing
E. H. Horton, B.Sc.Ag., Animal Science, Public Speaking
Mrs. H. I. Hurt, Commercial
Mrs. L. C. Johnson, Clothing and Handicrafts
A. Klar, B.Sc.Ag., Plant Science
Wm. McLean, Supervisor of Food Service and Dean of Men
W. B. Olson, Maintenance Foreman
L. G. Seath, B.Sc.Ag., P.Ag., Farm Management
K. M. Stone, B.Sc.Ag., Plant Science
Miss E. M. Taylor, B.Ed., High School and Vocational English, Social Studies and Bookkeeping
W. R. Williamson, Assistant Dean and Supervisor of Recreation
Miss C. Young, B.H.E., Foods and Home Management

FAIRVIEW AGRICULTURAL AND VOCATIONAL COLLEGE

The same courses were offered for boys in the 1963-64 term as the previous year. These were Agriculture, Automotive, and six-week Welding courses. Courses for girls were dropped with the exception of the Commercial course. This was cancelled too when it was not possible to hire an instructress. Special arrangements continued with the Fairview High School. Academic students resided at the college but received instruction at the high school.

The 1964 fall term for Agriculture was postponed until October 19th because of poor harvesting conditions. The Automotive and six-week Welding courses were replaced by Apprenticeship courses for first year Motor Mechanics and first year Welding. Two-week Welding courses were also introduced.

The Commercial course was offered again in the fall of 1964. An enlarged enrolment necessitated purchase of new typewriters and desks. The instructress, Mrs. Bea Kuntz, taught typing to four day students as well as the regular Commercial class.

The new Gymnasium and new Mechanics building were completed in October, 1964. Both were welcome additions. The large influx of new students used all facilities fully.

A dairy calf and maternity barn and an addition to the sheep shed were constructed during the summer.

Special Lecturers and Visitors

Among college visitors throughout the year were the following:

Mr. D. Stewart and Mr. D. Mage—Canada Cement Ltd., Edmonton
Mr. Rae—Selkirk Metal Products Company
Mr. D. MacRae—Cominco, Grande Prairie
Dean Eagles—Faculty of Agriculture, U.B.C.
Dr. E. E. Ballantyne—Director of Veterinary Services, Edmonton
Mr. J. M. Bentley—Federation of Agriculture, Edmonton
Mr. C. J. McAndrews—Colonization Manager, Lethbridge
Dr. G. Purnell—Director of Farm Economics, Edmonton
Mr. O. G. Bratvold—Supervisor of Crop Improvement, Edmonton
Mr. R. H. McMillan—Poultry Commissioner, Edmonton
Mr. H. McCallum—Dairy Commissioner, Edmonton
Mr. D. McFadden—Experimental Farm, Lacombe
Dr. A. A. Guitard—Experimental Farm, Beaverlodge
Dr. R. Harris—Experimental Farm, Beaverlodge

The college attracted many other visitors during the year and many compliments were received about the beautiful grounds. Copious summer rains and an efficient grounds crew under the direction of Mr. Baranszky, Horticulturist, were responsible.

Graduation

On June 24th, 1964, graduation ceremonies were held in the Legion Hall. Dr. E. E. Ballantyne, Director of Veterinary Services for the Province of Alberta, was guest speaker, Reverend Father Loran gave the Invocation. Maurice Hiltz of Goodfare was Valedictorian. Mr. J. E. Hawker, Director, represented the Department of Agriculture.

Nineteen students were graduated as follows:

Agriculture	10
Automotives	9
	19

Scholarship Winners

Representatives of a number of organizations were in attendance at the June 24th banquet to present scholarships to various students as follows:

Line Elevator Farm Service ($50.00) to Leslie Semple, Dawson Creek, B.C., for proficiency in the Plant Science courses at the end of the second session.

British American Oil ($50.00) to Gerald Vipond, Rolla, B.C. for proficiency in the Farm Management courses at the end of the second session.

Imperial Oil ($50.00) to Gordon McLean, Hythe, Alberta, for proficiency in the Farm Mechanics course at the end of the second session.

United Farmers of Alberta Co-operative ($50.00) to Leslie Semple, Dawson Creek, B.C., for being the top student in the Agricultural courses at the end of the second session.

W. P. Loggie ($50.00) to Henry Dechant, Friedenstal, Alberta, for being the student with the highest standing in the first session of the Agricultural course.

Peace River Livestock Co-op ($50.00) to George Dimsdale, McLennan, Alberta, for proficiency in the Animal Science courses at the end of the second session.

Bursary Recipients

Bursaries in the amount indicated were presented to successful applicants at the Christmas Closing Banquet on December 17th, 1964.

The student winners and donor organizations are listed below:

Henry Wise Wood Memorial ($135.00 each) to Laurent Benoit, Donnelly, and Jack Silvaniuk, Hazelmere.

Wheat Board Surplus Monies Trust ($100.00 each) to Pearl Coates, Brownvale, and Vivian Van de Cappelle, Harmon Valley.

Canadian Legion (Alberta Command) ($100.00) to James Elhorn, Wanham.

Winnipeg Grain Exchange ($100.00 each) to Allen Bulhofner, Northmark, and Wayne Moodie, Sexsmith.

Albright Memorial Fund ($50.00 each) to Fred White, Beaverlodge; Harold Bratland, Hythe; and Sharon Befus, Peace River.

F.U.A. District No. 1 Bursary ($250.00) to Werner Sellin, Northmark.

Kiss Farms Ltd. ($100.00) to Gerd Cramer, Woking.

Fairview Chamber of Commerce ($100.00) to Howard Thorson, Fairview.

Extension and Publicity

Many organizations and groups continued to take advantage of college facilities. Among these were Mr. D. A. Bancroft, University of Alberta Extension Department; Mr. G. McNaughton and Mr. G. Boulet, District Agriculturists from Berwyn and Fairview; Mr. Wm. Connor and various co-operative groups; and the Guidance Clinic.

After the fall term commenced a few organizations were denied accommodation because sufficient space was not available due to the large enrolment.

Television programs, mostly of a subject matter nature, were broadcast from Dawson Creek during the early months of 1964. Three programs, designed to publicize the college, were broadcast in October, November and December.

Many short radio statements and news releases were aired over the four Peace River country stations.

Peace River country newspapers gave the college excellent coverage. An occasional article also appeared in the Edmonton Journal. Many stories were accompanied by splendid pictures taken by Fairview Photographer Ziggie.

Staff members were invited to speak at numerous functions throughout the Peace River district. Most talks publicized the college and its objectives.

The Principal and several of the instructional staff spoke at most High Schools in the Peace River area. Several of these occasions were career days but a number featured general talks about college life and courses.

Summer and Fall fairs were attended by staff members who judged exhibits. A few of the larger fairs were visited by staff who exhibited a college display board. This afforded instructors an opportunity to contact prospective students.

A vigorous recruitment program was pursued during the late summer and fall. Several of the instructional staff and the Principal called on prospective students. An increased enrolment of over 150 per cent for first session Agriculture indicated that the campaign was productive.

Special Events

The biggest event of the year was the official opening of two new buildings which replaced accommodation destroyed by fire six years previous. The Honourable H. E. Strom and Honourable F. C. Colburne officiated at the opening ceremonies of the new Gymnasium and new Mechanics building on December 4th. Chairman, J. E. Hawker, Director of Agricultural Colleges, introduced several officials and dignitaries including the Honourable Ira McLaughlin and M.L.A.'s Mr. E. Lee, Mr. A. O. Fimrite, and Mr. R. Ells.

Tea was served to approximately 500 visitors. A tour of the buildings and facilities then followed.

The Alumni Association enjoyed their annaul banquet, meeting and dance the same day. Over 400 were present for the dance in the new gymnasium.

A course for Playground Supervisors was held the week of March 29th.

The Annual Meeting of the Alberta Institute of Agrologists was held at the college July 1st, 2nd and 3rd. About 100 members and their families were in attendance.

Four-H Club Week, with 63 students in attendance was held the week of July 6th.

The following week Teen Camp, with 73 in attendance, survived a very rainy week.

A number of short courses and other special events were scheduled throughout the year. These included: 4-H Public Speaking Finals; a Farmstead Planning Short Courses instructed by Mrs. J. T. Lancaster; Junior F.U.A. Short courses in First Aid and in Welding; a Grazing Association meeting; a Federated Co-op "Bake-Off"; and a Hospital Personnel Seminar. Fairview Rotary Club held a dinner meeting at the college in September. The duck dinner was enjoyed by members and the instructors who were invited as Rotary guests.

Instructional and Administrative Staff

Mr. V. W. Osbaldeston resigned on March 31st. On April 15th Mr. H. E. McLachlan terminated his employment but was reappointed in the fall. Mr. R. S. Forrest transferred to the Extension Branch in late April.

On May 13th Mr. A. E. Keller transferred to the Extension Branch for the summer. On September 12th Mr. Keller was granted leave for professional improvement at the University of Saskatchewan.

Other staff terminating their employment included Mrs. C. MacKay, Dean of Women; Accountant J. W. Wilson; Mrs. Wilson as Nurse; and Mr. K. Waldron, Dean of Men and Science Instructor.

New staff appointments for May were Mr. Baranszky-Job as Instructor in Horticulture, and Miss M. Allison Foster as Dietitian and Dean of Women.

On June 23rd Mr. C. C. Williamson was appointed Accountant, and on July 1st, Mr. M. H. Jaque was appointed Principal.

Mrs. Bea Kuntz joined the staff as Commercial Instructress in August, as did Mr. P. Farragher as Dean of Men and Instructor. Mr. J. H. Warne also returned from Educational Leave.

Miss W. D. Fiddes, Nurse; and Mr. R. S. Hamilton, Agricultural Mechanics Instructor, joined the staff in September.

Mr. E. Wilson was appointed as Agricultural Mechanics Instructor in early October.

Grounds

Staff was increased during the summer in order to cope with the tremendous growth caused by frequent rains. Lawns, flowers and shrubs were at their best and were the source of many favourable comments.

The front area adjoining the highway was improved by removing part of the fence and trimming the sloping portions. Several specimen trees were also introduced to improve the landscape.

Maintenance and Construction

The larger enrolment made it necessary to convert several rooms from storage and office space to dormitory accommodation. Kitchen staff quarters and part of the infirmary were also converted for student residence. This necessitated constructing a number of desks and drawers for student use.

Sleeping accommodation was improved by replacing felt with innerspring mattresses in most of the residence rooms.

Many of the residence rooms were repainted, as were several of the classrooms and corridors.

Several of the classrooms were found to have insufficient lighting. This was corrected and new lights were also placed in the rotunda.

The old Home Economics Foods Laboratory was converted for the use of the Commercial class and a new office was constructed for the instructress. The old sewing laboratory was converted into a Horticultural Laboratory. Several other changes in classrooms were made. A welcome change was brought about by the construction of several new narrow tables for student use in most classrooms.

New fences were built for uptown staff residences. Other maintenance jobs included recementing the walls in the water softener room and construction of cement curbing in front of the main residence building. Maintenance staff also constructed the new dairy calf and maternity barn and an addition to the sheep shed.

New quarters for maintenance were provided in the new mechanics building. These improved facilities should help the staff maintain the high quality of work they have established.

Farm

Because of a very wet summer and fall haying and harvesting were delayed. Despite the delay excellent yields were obtained, although quality was impaired.

It was necessary to purchase additional hay and grain in order to provide for the winter and spring feed requirements. It is evident that purchases of grain must continue unless more land is acquired.

Four bulls were tested at the Bassano station. One of these topped the Grande Prairie Bull Sale in March.

Culling continues in both the dairy and beef herds, but is limited because of the small numbers in each herd.

Cross-breeding with Landrace, Lacombe and Yorkshire boars is providing valuable material for student instruction.

A new three-plow tractor replaced the old unit. A new pull-type swather was purchased, as well as a feed cutter and small feed mixer.

Crops Yields, 1964:

	Acreage	Yields
Oats	50	3,895 bus.
Barley	10	491 bus.
Silage	38	100 tons
Hay	34	34 tons
Straw	60	94 tons

Livestock Inventory—December 31, 1964

Kind	Breed	Number	Total
Beef Cattle	—Aberdeen Angus	33	......
	Shorthorn	1	......
	Feeders	29	63
Dairy Cattle	—Holsteins	14	14
Sheep	—Columbia x Suffolk	8	......
	Cheviot x Suffolk	4	......
	Rambouillet x Suffolk	7	......
	Corriedale x Suffolk	13	......
	Hampshire x Rambouillet	6	......
	Suffolk	13	......
	Cheviot x Rambouillet	7	......
	Hampshire x Romnelet	10	......
	Cheviot x Romnelet	12	......
	Hampshire Ram	1	......
	Dorset Ram	2	82
Swine	—Yorkshire (plus some crossbreds)	57	57
Poultry	—White Leghorn (Single Comb)	257	257

Farm Sales, 1964:

Livestock	$10,309.21
Dairy Products	3,525.77
Poultry Products	1,083.38
Wool	271.84
Vegetables	647.56
Total Sales	$15,837.76

Summary of Courses and Attendance, 1964:

	Winter Session	Spring Session	Fall Session
Agriculture	35	N/O	69
Academics	36	33	31
Automotives	10	9	N/O
Commercial	*N/O	N/O	22
Motor Mechanics	N/O	N/O	9
Welding	11	N/O	10
Total	92	42	141

*N/O—Not Offered.

Instructional and Administrative Staff, 1964-65:

M. Baransky-Job, B.Sc. Ag., Horticulture
Mrs. W. Bartlett, Librarian
P. Farragher, B.Agr.Sc., (N.U.I.), Dean of Men, Community Organization
Miss W. D. Fiddes, Nurse, Assistant Dean of Women
D. A. Fleming, Recreational Supervisor, Assistant Dean of Men
Miss M. A. Foster, Dietitian, Dean of Women
R. S. Hamilton, B.E., P.Eng., Mechanics
Miss D. M. Hoel, Registrar, Assistant Stenographer
M. H. Jaque, B.Sc.Ag., M.Ed., P.Ag., Principal
L. T. Jones, B.S.A., Animal Science
Mrs. B. L. Kuntz, Commercial
J. T. Lancaster, B.Sc.Ag., Prof. Cert., P.Ag., Plant Science
M. E. McLachlan, B.Sc.Ag., Animal Science
E. A. Miller, Metalwork
Mrs. D. E. Minor, Secretary
H. E. G. Petersen, Automotives
J. P. Tait, B.Sc.Ag., Prof. Cert., Farm Management, Vocational Academics
J. H. Warne, B.Sc.Ag., P.Ag., Farm Management, Vocational Academics
C. C. Williamson, Accountant
E. E. Wilson, B.E. (Temporary), Mechanics

Report of the Land and Forest Conservation and Utilization Committee

and

ARDA

G. R. STERLING, B.Sc., Chairman

H. W. THIESSEN, B.Sc., Superintendent of Irrigated Pastures

The Land and Forest Conservation and Utilization Committee remained the same and held meetings in conjunction with the ARDA Advisory Committee because of the duplication of personnel on each Committee. Under this Committee, work was completed as indicated below:

Rannock Grazing Reserve:

200 acres were brushed and piled, and this area seeded to tame grasses in the Spring of 1964. Some land was purchased in the area north of the present existing pasture. Approximately 10 acres of the area brushed and seeded in 1963 was sprayed with chemicals to kill tree regrowth.

Wanham Grazing Reserve:

Approximately 120 acres of low lying lands were cleared of brush in order to better control water hemlock. This area was seeded to water tolerant grasses.

Buck Mountain Grazing Reserve:

This pasture, which was formerly Wetaskiwin, was renamed Buck Mountain. This pasture was officially opened in June by the Honourable Harry E. Strom. A full-time caretaker cared for the cattle during the season. The sorting corrals were completed and all of the fences completed with the exception of a little on the east side which could not be done due to adverse weather conditions. The County of Wetaskiwin and the Department cooperated to build a road from north to south past Buck Mountain. This will allow entry to the corrals from the north.

Medicine Lake Grazing Reserve:

This pasture, which was formerly Ponoka Grazing Reserve, was renamed Medicine Lake Grazing Reserve. Some lands in the area were purchased and the fence completed on two sides of one township. The remainder of the fence line was cleared.

Thorhild Grazing Reserve:

Considerable land was purchased in this area, and the fence line cleared around approximately three-quarters of a township.

Smoky Lake Grazing Reserve:

A few parcels of land were purchased in this reserve.

St. Paul Grazing Reserve:

This pasture was approved for ARDA assistance but no physical work was completed.

Stony Plain Grazing Reserve:

This reserve was approved for ARDA assistance and some land in the area was purchased.

Kleskun Lake Grazing Reserve:

This pasture was submitted for ARDA assistance, but Federal approval was not received prior to the year end.

Whitemud Grazing Reserve:

This pasture was approved to receive ARDA assistance, and eleven miles of fence on the north of the pasture was built.

Westlock Grazing Reserve:

The Westlock Municipality requested us to consider building a grazing reserve in Township 64, Range 26 and part of Range 25.

Goodfare, Ranfurly, and Wolf Lake Pastures:

Funds did not permit work on these pastures during 1964.

Grassy Lake Grazing Reserve:

Work continued in the land levelling aspect of this pasture. The area was rockier than anticipated, consequently development was slower due to the excessive number of rocks. Considerable work was done on irrigation ditching, and the building, installation, tamping, riprapping, and grouting of structures. Approximately two miles of standard fence was built along the south side.

Approximately 130 acres of dry land was seeded to a mixture of 3 pounds of crested wheat grass, 3 pounds of Russian wild rye, and 1 pound Rambler alfalfa.

Purple Springs Grazing Reserve:

Some re-ditching and irrigation improvement was done on this pasture.

Bow Island Grazing Reserve:

Approximately 350 acres of dry land was seeded to a mixture of 3 pounds of crested wheat grass, 3 pounds Russian wild rye, and 1 pound of Rambler alfalfa.

Twin River Grazing Reserve:

This reserve was approved for ARDA assistance. Fencing materials were obtained for the construction of 6 ¼ miles of fence.

Pinhorn Grazing Reserve;

This reserve was approved for ARDA assistance. An additional area was added, and 26 ½ miles of fence were constructed. The road from the north pasture boundary to the headquarter site was regraded and gravelled. One spring was developed for stock watering purposes.

Grazing Associations:

Grazing Associations received assistance in the form of interest free loans to implement improvements as indicated below:

Basin Valley Grazing Association	$ 325.25	for fencing materials
Beaver Valley Grazing Association	623.20	for fencing materials
Elk Island Grazing Association	597.00	for fencing materials
North Goodwin Stock Improvement Association	1,808.00	for fencing materials

Demonstration Plots:

Plots on the farms of Messrs. Green, Wade and Fox Brothers were conducted during 1964. Yield tests were taken and recorded on each plot.

Soil and Feed Testing Laboratory:

Mr. G. R. Sterling continued as a member of the Supervisory Committee of the Laboratory. Four meetings were held throughout the year. The following table shows the samples handled during the last six years:

1959	2,219
1960	3,681
1961	3,794
1962	5,634
1963	8,484
1964	10,254

Below is a table showing the different samples analyzed and the breakdown of the feed samples. Note that 1,326 feed samples were submitted, but that a total of 1,923 samples were analyzed. This is because more than one analyses was done on some samples:

Samples Submitted

Quarter	Feed	Farm Soil	Garden Soil	Greenhouse Soil	Total for Quarter
January 1 - March 31	507	1,817	34	282	2,640
April 1 - June 30	60	1,033	233	259	1,585
July 1 - September 30	110	446	165	268	989
October 1 - December 31	649	4,087	110	194	5,040
Total	1,326	7,383*	542	1,003*	10,254

*1,670 soil samples were tested under the soil testing correlation program, (1,600 farm soils, 70 greenhouse soils).

Breakdown of Feed Samples

Quarter	Grains	Hays	Silages	Special Analyses*	Total for Quarter
January 1 - March 31	141	237	116	294	788
April 1 - June 30	32	19	8	17	76
July 1 - September 30	26	62	10	33	131
October 1 - December 31	191	314	83	340	928
Total	390	632	217	684	1,923**

*Nitrate, Prussic Acid, Carotene and Fat.

**Many samples receive both regular and special analysis, resulting in one sample being recorded in two places and accounting for the greater number of samples analyzed.

Reports and Recommendations Issued to Farmers

		Number of Reports			
Quarter	Feed	Farm Soil	Garden Soil	Greenhouse Soil	Total
January 1 - March 31	244	495	27	67	833
April 1 - June 30	34	369	165	45	613
July 1 - September 30	50	136	119	48	353
October 1 - December 31	303	857	74	51	1,285
Total	631	1,857	385	211	3,084
Average number of samples per report	2.1	3.1	1.4	4.4	2.8

ARDA

The province continued under the General ARDA Agreement. A meeting of the Provincial ARDA representatives discussed the New Agreement replacing the present one on April 1, 1965. This New Agreement stressed rural development even more than the present agreement.

ARDA Advisory Committee:

The personnel of this Committee remained the same with the exception that Mr. John Smith of the Welfare Department was added to the Committee. This Committee met nine times throughout the year and discussed a total of 49 projects (some were discussed twice).

The following is a breakdown of the types of projects discussed.

Research	20
Soil and Water Conservation	6
Alternative Uses of Land	7
Community Pastures	13
Rural Development	3

ARDA Coordinating Committee:

This Committee met five times throughout the year and did not reject any of the projects which were approved by the ARDA Advisory Committee.

ARDA Projects Approved:

The following table shows the projects approved under each of the five headings of the Agreement.
* Indicates approved by Alberta only.

Research:

Appraisal Value Land Levelling in the Irrigation Districts of Southern Alberta
Soil Test Appraisal
Groundwater Research & Observation Well Network in the Saskatchewan River Headquarters
Groundwater Exploration and Aquifer Evaluation in the Alberta Plains
Groundwater-Data Processing
Soil Capability for Agriculture (1964-65)
An Inventory of Soil Capability for Forest Production in the Province of Alberta
Forest Land Use-Capability Classification
*Crop Yield as Related to Several Variables; Determination of Economic Optima; Certain Aspects of Crop Quality
County of Sturgeon Water Conservation & Utilization Survey
Fresh Vegetable Study
Mapping Present Land Use—In the Edmonton and Rural Development Areas of Alberta

Soil and Water Conservation

East-West Prairie Rivers
Alberta Soil & Crop Management Program
Land Reclamation
Battersea Drainage

Alternative Uses of Land

Alberta Land Assembly
Purchase of Patented Land in the Rocky Mountain Forest Reserve
*Miquelon Lake Provincial Park
*Beaver Creek Watershed Protection

Community Pastures

Grassy Lake Grazing Reserve
Smoky Lake Grazing Reserve
Thorhild Grazing Reserve
Pinhorn Grazing Reserve
Twin River Grazing Reserve
Purple Springs Grazing Reserve
St. Paul Grazing Reserve
Stony Plain Grazing Reserve
Whitemud Grazing Reserve
Kleskun Lake Grazing Reserve
Medicine Lake Grazing Reserve

Rural Development

Nil

Mr. V. T. Janssen was appointed to head the Rural Development Study in August 1964. This study was approved in 1963. Three summer students worked from spring to fall on this study, and Mr. Janssen worked from August until the end of the year. Considerable basic data on the Edmonton area has been collected and studied. Three local ARDA Committees were being formed at the close of the year.

REPORT OF THE BOARD OF TRUSTEES OF THE SURPLUS WHEAT BOARD MONEY RECEIVED BY THE GOVERNMENT OF THE PROVINCE OF ALBERTA FROM THE 1916 - 1919 CANADIAN WHEAT BOARD

Members

Honourable HARRY E. STROM—Chairman
R. M. PUTNAM—Deputy Minister of Agriculture
RICHARD BALLHORN—Farmer, Wetaskiwin
ARTHUR PIERSON—Vice-President & Treasurer of the Independent Grain Company, Calgary

A Statement showing the Receipts and Expenditures is attached, together with a statement of Assets and Liabilities.

During the year receipts were $3,853.45, all of which was in payment of interest on investments.

Payments during the year amounted to $4,160.00 and were made for the following: Scholarships and Bursaries awarded $4,150.00, Meetings Expenses $10.00.

MEETING

A meeting of the Board of Trustees was held on August 20th, 1964 and the schedule of Scholarships and Bursaries to be awarded for the ensuing year was approved totalling $3,850.00.

GENERAL

The Board has continued the policy of conserving the principle in the Trust Fund making all payments from income received on investments.

INVESTMENTS

Investments at the end of the twelve month period is as shown on the attached balance sheet.

TREASURY DEPARTMENT
WHEAT BOARD MONIES TRUST FUND
Balance Sheet as at December 31st, 1964
ASSETS

Current			
Bank Balance		$ 4,664.74	
Accrued Interest Receivable		727.02	$ 5,391.76
Investments	Par Value	Book Value	
Gov't. of Can. 3¾% Jan. 15/78	$ 2,500.00	$ 2,512.40	
Prov. of B.C. 3% Dec. 15/69	45,000.00	44,884.66	
Prov. of Sask. 5½% Feb. 15/82	5,000.00	4,967.67	
Ont. Hydro Elect. 4¼% Nov. 1/67	4,000.00	4,000.00	
Prov. of N.B. 3½% April 1 /67	45,000.00	44,966.98	
Prov. of Newfld. 3¾% June 1/76	4,000.00	3,937.12	
City of Calgary 3½% July 1/68	4,000.00	3,997.80	
	$109,500.00	$109,266.63	
Total Investments—Book Value			$109,266.63
Total Assets			$114,658.39

LIABILITIES

Trust Fund December 31st, 1963	$114,911.26
Less: Deficit for 1964	252.87
Total Liabilities	$114,658.39

TREASURY DEPARTMENT
WHEAT BOARD MONIES TRUST FUND

Accrued Interest Receivable as at December 31st, 1964

Government of Canada Debentures		
$2,500, 3¾%, January 15, 1978, 5½ months		$ 42.96
Province of British Columbia Debentures		
$45,000, 3%, December 15, 1969, ½ month		56.25
Province of Saskatchewan Debentures		
$5,000, 5½%, February 15, 1982, 4½ months		103.13
Province of New Brunswick Debentures		
$45,000, 3½%, April 1, 1967, 3 months		393.75
Ontario Hydro Electric Debentures		
$4,000, 4¼%, November 1, 1967, 2 months		28.33
Province of Newfoundland Debentures		
$4,000, 3¾%, June 1, 1976, 1 month		12.50
City of Calgary Debentures		
$4,000, 3½%, July 1, 1968, 6 months		70.00
Bank Interest		
November, 1964 $4,514.74 @ 2%	$ 7.42	
December, 1964 4,189.74 @ 2%	7.12	14.54
		$ 721.46
Add: Accumulation of Discount		
Accrued on Province of British Columbia	$ .96	
Accrued on Province of Saskatchewan	.78	
Accrued on Province of New Brunswick	3.31	
Accrued on Province of Newfoundland	.80	
Accrued on City of Calgary	.26	
Less: Amortization of Premium		
Accrued on Government of Canada	$ .55	5.56
Net Earnings Accrued to December 31st, 1964		$ 727.02

TREASURY DEPARTMENT
WHEAT BOARD MONIES TRUST FUND

Statement of Receipts and Payments for the Year Ended December 31st, 1964

Bank Balance January 1st, 1964		$ 4,971.29
Interest on $ 2,500 Canada	$ 93.74	
Interest on 45,000 Province of B.C.	1,350.00	
Interest on 5,000 Province of Sask.	275.00	
Interest on 4,000 Ontario Hydro Electric	170.00	
Interest on 45,000 Province of N.B.	1,575.00	
Interest on 4,000 Province of Newfoundland	150.00	
Interest on 4,000 City of Calgary	140.00	
Interest on Bank Balance	99.71	$ 3,853.45
		$ 8,824.74
Deduct Payments:-		
Scholarships—Fairview School	$ 200.00	
—Olds School	1,500.00	
—University of Alberta	950.00	
—Vermilion School	1,500.00	
Meeting Expense—R. Ballhorn	10.00	$ 4,160.00
Bank Balance December 31st, 1964		$ 4,664.74

Report on Farm Credit

ALBERTA FARM PURCHASE BOARD

K. G. TAYLOR, B.Sc., Chairman
H. ALLAM, Member
J. M. CURRIE, Member

Farm Purchase Credit Act

During the fiscal year April 1, 1963 to March 31, 1964, the Alberta Farm Purchase Board approved 349 applications, committing a total of $2,042,372.75 in Government loans.

There were 70 Advisory Committees operating at the end of 1964. The following is a list of the Counties, Municipal Districts and Improvement Districts which have formed Committees up to and including December 31, 1964, along with a listing of applications which have been handled by the Alberta Farm Purchase Board since its inception in 1957. The figure in brackets shows the number of applications submitted to the Board for the year 1964 only.

District	Applications submitted to Board	Approved	Rejected	Withdrawals	Hold for more Information	Value of Farm Lands	Government Loans to Board
Athabasca	56 (7)	37	12	7	......	$ 346,349.00	$ 169,100.00
Barrhead	67 (16)	47	14	2	4	636,400.00	294,850.00
Beaver	170 (15)	136	28	5	1	1,703,852.00	728,670.00
Bonnyville	95 (17)	80	12	3	......	711,700.00	391,450.00
Camrose	176 (10)	147	23	6	......	1,982,565.00	933,510.00
Cardston	71 (9)	52	16	2	1	702,925.90	306,052.95
Eagle	82 (5)	63	16	2	1	441,200.00	207,800.00
Flagstaff	97 (17)	82	11	4	......	938,405.00	455,035.00
Foothills	41 (3)	32	7	1	1	554,308.00	240,400.00
Forty Mile	58 (9)	47	7	1	3	593,388.27	273,936.63
Grande Prairie	62 (2)	46	14	2	......	475,900.00	221,600.00
Kneehill	1 (1)	1	......	......	......	24,000.00	10,000.00
Lacombe	8 (......)	7	1	......	......	78,050.00	37,775.00
Lac Ste Anne	28 (......)	15	10	2	1	136,200.00	64,074.50
Lamont	154 (11)	123	22	8	1	1,237,100.00	567,800.00
Leduc	131 (20)	117	8	3	3	1,328,375.00	641,537.50
Lethbridge	80 (7)	49	26	2	3	861,420.00	395,245.00
Minburn	108 (4)	76	24	6	2	768,410.00	381,835.00
Mountain View	63 (6)	36	22	2	3	564,120.00	259,000.00
Newell	12 (1)	8	4	......	......	101,400.00	45,860.00
Paintearth	126 (21)	115	5	4	2	997,360.00	524,286.00
Peace	3 (......)	2	1	......	......	29,000.00	14,500.00
Pincher Creek	14 (5)	10	4	......	......	196,442.00	90,750.00
Ponoka	116 (8)	84	19	9	4	1,096,050.00	515,895.00
Red Deer (new)	1 (1)	1	......	......	......	30,000.00	10,000.00
Rocky View	76 (1)	65	10	1	......	1,028,225.95	466,141.95
Smoky Lake	...... (......)	......	......	......	......	......	......
Smoky River	51 (9)	37	13	1	......	361,380.00	153,440.00
Spirit River	...... (......)	......	......	......	......	......	......
Starland	53 (4)	46	7	......	......	541,972.00	262,195.00
Stettler	29 (5)	21	6	1	1	307,800.00	144,400.00
Stony Plain	22 (6)	15	6	......	1	185,500.00	88,550.00
St. Paul	54 (11)	39	13	1	1	374,315.00	179,605.00
Strathcona	18 (5)	15	2	......	1	176,250.00	81,325.00

District	Applications submitted to Board	Approved	Rejected	Withdrawals	Hold for more Information	Value of Farm Lands	Government Loans to Board
Sturgeon River	50 (4)	31	11	5	3	454,970.00	209,175.00
Thorhild	79 (8)	58	16	3	2	510,460.00	240,850.00
Vermilion River	69 (6)	63	5	1	......	701,192.00	345,796.00
Vulcan	92 (4)	78	8	3	3	1,077,005.00	481,262.50
Wainwright	39 (3)	28	6	3	2	333,200.00	161,350.00
Warner	37 (9)	25	8	3	1	415,369.50	181,344.75
Westlock	207 (29)	158	44	1	4	1,693,590.00	801,400.00
Wetaskiwin	55 (4)	37	15	2	1	490,300.00	218,100.00
Wheatland	22 (1)	19	2	......	1	287,250.00	132,200.00
Willow Creek	79 (4)	54	22	3	......	866,446.00	398,474.50
Special Area #2	93 (9)	82	8	3	......	821,610.00	401,023.00
Special Area #3	61 (13)	55	6	......	......	635,360.00	311,030.00
I.D. # 11	54 (9)	33	18	3	......	529,100.00	233,730.00
I.D. # 22	3 (......)	1	2	......	......	16,000.00	8,000.00
I.D. # 42	...... (......)	......	......	......	......	......	......
I.D. # 58	5 (1)	2	3	......	......	29,000.00	14,500.00
I.D. # 65	68 (7)	42	23	2	1	458,400.00	218,800.00
I.D. # 77	1 (......)	1	......	......	......	2,000.00	1,000.00
I.D. # 78	12 (......)	7	5	......	......	25,250.00	11,575.00
I.D. # 95	6 (......)	2	4	......	......	17,000.00	8,500.00
I.D. #101	13 (1)	7	6	......	......	41,500.00	19,100.00
I.D. #102	55 (1)	27	25	2	1	148,200.00	70,230.00
I.D. #107	5 (1)	4	1	......	......	21,700.00	10,590.00
I.D. #108	3 (......)	2	......	1	......	15,500.00	7,750.00
I.D. #109	3 (......)	3	......	......	......	25,500.00	12,750.00
I.D. #111	...... (......)	......	......	......	......	......	......
I.D. #124	6 (......)	4	2	......	......	27,350.00	13,675.00
I.D. #125	16 (......)	10	6	......	......	79,500.00	34,550.00
I.D. #126	8 (......)	5	2	......	1	28,500.00	14,250.00
I.D. #131	5 (1)	3	2	......	......	26,000.00	13,000.00
I.D. #132	17 (1)	8	6	1	2	53,500.00	26,750.00
I.D. #134	12 (......)	9	2	1	......	51,500.00	23,750.00
I.D. #138	19 (2)	8	11	......	......	70,215.00	31,736.00
I.D. #139	4 (1)	2	1	1	......	17,250.00	8,625.00
I.D. #146	3 (......)	1	2	......	......	6,000.00	3,000.00
I.D. #147	1 (......)	1	......	......	......	4,900.00	2,450.00
TOTALS—70	3,325(355)	2,521	635	113	56	$29,490,980.62	$13,826,936.28

Of the 2521 applications approved, 296 applications have been approved in 1964, with $1,750,180.25 committed in loans for the twelve month period.

Purchase Boards have been formed in all areas of the Province with the exception of the Municipal Districts of Taber, Acadia Valley, Fairview and Provost.

The Alberta Farm Purchase Board held 33 meetings during the year, and have met a total of 184 times since the Act was passed in 1957.

Farm Home Improvement Act

The Farm Home Improvement Act was passed in 1959. During 1964 a total of 20 loans were made with a total value of $37,800.00.

A total of 264 loans valued at $426,394.00 have been made under this Act since inception.

Report of Farm Economics Branch

1964

G. R. PURNELL, B.Sc., M.Sc., Ph.D., P.Ag.—Director

Farm Management Extension Section:

A. R. Jones, B.Sc., P.Ag., Supervisor
L. Bauer, B.Sc., P.Ag., Assistant Supervisor
M. A. Cameron, B.Sc., P.Ag., Regional Economist, Lethbridge
B. H. Friesen, B.Sc., P.Ag., Regional Economist, Calgary

Production Research Section:

B. J. McBain, B.Sc., P.Ag., Supervisor
K. D. Porter, B.Comm., P.Ag., Assistant Supervisor
R. J. Miller, B.Sc., Agricultural Economist
G. B. Parlby, B.Sc., Resource Development Economist

Marketing Section:

C. H. Ferries, B.Sc., M.Sc., P.Ag., Supervisor
G. R. Keay, B.Sc., P.Ag., Assistant Supervisor

Statistics Section:

R. E. English, B.S.A., M.S.A., Agricultural Statistician
W. G. Kuhtz, B.Sc., Assistant Agricultural Statistician

Rural Development Section:

V. T. Janssen, B.Sc., P.Ag., Supervisor

A. GENERAL

In 1962, soon after this Branch was established, a long range program was drawn up as a guide for the development, organization, and function of this body. This program guide anticipated increasing demand for more economic facts and assistance in economic principles by farmers, ranchers, agricultural business, Government policy makers and program administrators. A surge in this demand has been realized and continued to be felt in 1964. As the farm cost-price squeeze tightened farmers and Government people recognized the need for more adequate economic information and use of sound business practices if farming was to be profitable.

To meet this demand the staff and program of the Branch were expanded in 1964 in accordance with the long range program. Mr. A. R. (Jerry) Jones was employed to fill the vacancy of Supervisor of the Farm Management Section created by the resignation of Mr. T. A. Petersen. This Section was expanded by addition of Messrs. M. A. Cameron, and B. H. Friesen as Regional Farm Economists at Lethbridge and Calgary respectively. These Regional men gave assistance to farmers and farm groups through the 15 District Agriculturists and the District Home Economists in the two regions. This arrangement enabled personnel to provide necessary help more efficiently and economically in the regions. A vacancy in the Production Research Section was filled by Mr. R. J. Miller and a new position of Resource Development Economist was filled by G. B. Parlby.

Under the Agricultural Rehabilitation and Development Act (ARDA) Alberta has agreed to carry on socio-economic research of areas in the province which may not be fully developed. This work was initiated in Census Division No. 14 in 1964 and Mr. V. T. Janssen was employed as Supervisor of this section. During the summer months five University students assisted with field work on ARDA and Production Research.

Advisory Assistance was provided to Government people on economic aspects of crop insurance, seed cleaning plants, ARDA, vegetable production and marketing, milk price control, land appraisal, credit, and irrigation policies. Branch personnel were involved in a thorough review of the Marketing of Agricultural Products Act and in requesting publicity from The Alberta Securities Commission on investment advice to farm people.

Staff members gave speeches at approximately 200 farm meetings, prepared 10 radio programs on Call of the Land and 20 articles for Farm Notes, official news media for the Department of Agriculture, and made at least 10 appearances on television. The Branch Director also attended the Federal-Provincial Economic Statistics Conference and the Federal-Provincial Agricultural Outlook Conference in Ottawa. A considerable amount of time and effort was spent by Branch personnel in all sections in providing advice and information to individual farmers and representatives of farm commodity organizations and agricultural business. A brief resume of the work of the five operating sections of the Branch is presented in the following paragraphs.

B. FARM MANAGEMENT EXTENSION SECTION

A steadily growing number of farmers are coming to realize that facts, not guesses, are essential to good decision making. Each year the number of farmers actively seeking farm management consulting work grows as they come to recognize the worthwhile nature of farm management research and extension work.

The greatest emphasis in 1964 was placed on how to use the facts which a business analysis reveals as important. This emphasis was given top priority when it was learned that accumulation of the facts about each farm business was not enough to bring about needed farm changes in organization and mangement. It was found that farmers had to be shown how to use these facts and we resorted to the comparative budgeting technique to teach them how to use the facts gleaned from the analysis. Considerable success grew out of this change in approach to farm management extension.

During the 1964 year, several district agriculturists developed an interest in an active farm management extension program. About one-quarter of the district agriculturists received group instruction on how to make a business analysis and how to use the information obtained. These district agriculturists then set up meetings with their farmers and farm management specialists and taught the comparative budgeting technique. It is expected that within a three-year period all district agriculturists will be able to pick out the important facts of a business analysis and teach the farmers how to use the comparative budget in making worthwhile management decisions.

Alberta Livestock Leasing and Feeding Bulletin:

A steadily growing interest in livestock feeding and leasing arrangements has developed as capital needs for farming have increased. Because livestock leasing and feeding arrangements are no longer "cut and dried" and because of the numerous requests from farmers, ranchers, feeders, feed companies and specialists, a bulletin was published on this important topic.

The bulletin was based on information collected on personal interviews of over 100 operators, by members of the Farm Economics Branch. The information collected was combined with certain economic principles and legal requirements to provide guidelines to persons involved in or considering becoming involved in livestock leasing or feeding arrangement. This bulletin was released to the public in the latter part of November and two-thirds of the 3,000 bulletins printed have already been distributed by the year end.

Farm Business Association Groups:

Three new areas joined in the formal voluntary Farm Business Analysis previously conducted in up to 5 areas, Camrose-Wetaskiwin-Leduc, Calgary-Drumheller and Sturgeon County became formal associations this year. This brought the number of formal business associations to seven, with participating farmers who paid the $10 analysis fee numbering 287. Informal analysis was carried out on 37 additional farmers records. Reports were issued for each of the seven regions but the reports were in demand throughout the provinces. Shortages developed because of the unusual number of requests for the pamphlets from both groups and individuals in this province and throughout Canada. A total of 5,500 reports were printed with over 3,000 distributed in 1964. The pamphlets stimulated interest and action throughout Alberta in the formation of new associations or other farm management groups.

Those farmers and district agriculturists directly involved requested meetings to discuss more fully the report and its interpretation and means of getting information and usefulness out of each report. District agriculturists outside the regions covered used the reports to build sounder extension programs for their areas and to stimulate participation by farmers in farm management associations.

Each farmer's report was discussed fully with the district agriculturist concerned. Weaknesses in each farm business were pointed out and alternatives for improvement were worked out in cooperation with the district agriculturist. Each farmer was given a copy of the recommendations developed and made use of these in discussing needed changes and implementation.

In order to handle the growing number of business analyses requested a start was made to set up electronic analysis of farm records. The 1964 data reports will be handled manually as well as electronically to check on the accuracy of the program, before moving into a completely electronic system

T.V. Short Course—This Business of Farming:

Alberta was again given the leading role in developing the farm management television short course program for the Friday session, of this week long course which is presented jointly by Departments of Agriculture in the three Prairie Provinces and the C.B.C. A year ago the emphasis was placed on farm records. This year emphasis was on business analysis and the comparative budgeting techniques to develop the basic farm management principles and give recognition to the important role farm management plays in the operator's success. The follow-up program for the Lethbridge T.V. area was also planned in conjunction with local district agriculturists and the regional farm economist. The program will be televised in 1965 during the week of January 4th, with Farm Management receiving emphasis on two days of the five-day short course.

General Farm Management Group Meetings:

Group meetings on farm management totalled 95 with an estimated attendance totalling 2,410. These dealt with objectives and results obtained through the application of farm business principles in business analysis and comparative budgeting. About one-half of the meetings were devoted to means of obtaining and using facts to make better business decisions and thus bolster farm income. The balance were devoted to accounting schools and data collecting workshops.

Eleven meetings were devoted to district agriculturists explain analysis procedure and interpretation of results, and further assistance was given to 13 district agriculturists in building a Farm Management extension program for their respective area.

C. PRODUCTION RESEARCH SECTION

In addition to carrying on the four continuing Cost of Production Studies for milk in the areas of Edmonton, Red Deer-Calgary, Lethbridge, and Medicine Hat and the Fresh Vegetable Study for Carrots, Turnips, Onions and Corn, there were two projects undertaken. The first of these was a Land Levelling Study and the second a study of Cost of Growing Peas.

Land Levelling—New Studies Undertaken

The summer of 1964, saw the initiation of a study to determine the economic feasibility of land levelling for irrigation purposes. More specifically, this study was designed to determine the relative value of flood irrigation on levelled land as opposed to flood irrigation on unlevelled land and their economic relationship to sprinkler irrigation. This study is being conducted with the co-operation and assistance of the Colonization Branch at Lethbridge and the local District Irrigationists located at Lethbridge, Taber, Bow Island, Vauxhall and Brooks. The ensuing table shows the number of participating farmers and the number of individual fields under study.

TABLE I

	No. of Farmers	No. of Levelled Fields	No. of Unlevelled Fields	No. of Sprinkled Fields	Total No. of Fields Studied
Lethbridge area	14	9	10	8	27
Taber area	15	15	6	8	29
Bow Island area	19	16	14	8	38
Vauxhall area	12	10	11	2	23
Brooks area	8	8	8	2	18
Total	68	58	49	28	135

The study is being conducted on two soil groups (category 1 soils—the most desirable irrigable soil and category 2 and 3 soils—grouped together for purposes of analysis which are less desirable irrigable soils) and for various crops. Thus the sample must be stratified and analyzed for soil types and various crops.

Benefits from land levelling accrue largely from the following areas:

1. Increased crop yields
2. Labor and time saving for irrigation
3. Decreased acreage in field ditches required to irrigate.

Benefits from these areas were investigated. Tabulations to date indicate that there were significant benefits from Land Levelling and therefore proved to be a profitable investment. Other possible benefits from levelling were:

1. Higher quality crops
2. Soil conservation
3. Water conservation
4. Non-economic benefits in terms of social well-being as the result of doing a superior job of irrigation with relative ease.

In the future, water conservation which land levelling allows may become a major consideration. Again, tabulations to date indicated that there was a significant saving particularly for the specialty crops. This study is expected to run at least two years and because of the climatic variations the results should be evaluated for the entire period of study.

Special Request to up-date Cost of Pea Production

A cost of Pea Production along with Canning Corn and Sugar Beets was conducted from 1954 to 1958 by this staff. Following a special request by the growers in the early spring of 1964, a one year's follow-up study was undertaken. Thirty-six records involving 1900 acres were secured through the cooperation of the growers and the canneries concerned. The pea crop enterprises were confined to the Lethbridge Northern, Taber and Bow River Development Irrigation districts. Two field calls were made to each of the thirty-six farms by economists from our staff to make a thorough and accurate appraisal and recording of the pea growing operation. This information was analyzed and a report prepared for distribution early in 1965.

New Publication on Oilseed and Wheat Costs

A final report on three years of study of production costs of rapeseed, wheat and sunflower seed was published in 1964. The study, which had been carried on in the most concentrated areas of oilseed production in Alberta covered the crop years 1961, 1962, and 1963. Peace River, Central Alberta and Southern Alberta were represented in the districts selected. Participants in the study gave records of their enterprises each year; and they received personal reports on the outcome of these enterprises, as well as a general commentary on regional conditions of production. Reports were also submitted to the government and to interested parties in Agricultural business. The study dealt with 104 farms and 154 enterprises annually during the years in which the respective crops were studied. It provided measurement data for actual and potential growers of oilseeds and wheat under conditions of irrigated and dryland production. A comparison of costs and returns by crops is presented in Figures 1 and 2.

Study of Growing Vegetables under Irrigation Continues

A report on the second year of a fresh vegetable study was distributed in 1964. This study was concerned with fresh vegetable production on irrigated land in Southern Alberta. It involved analysis of production, storage and marketing costs of fresh corn, carrot, onion and turnip crops, and the net returns arising out of their production. Twenty enterprises supplied data for analysis in the crop year of 1964. The results will be published in 1965, in a 3 year economic report. Certain significant data arose out of the 1963 report. Gross cash margins per acre (simple average) were; fresh corn $151.07, carrots $385.72, turnips $244.73, and onions $277.75. Net returns per acre derived after consideration of cash and non-cash costs appeared as follows in Table 2. Wide variation between farms on costs and returns appear in the study and hence each farm is kept separate in the report.

Resource Development Studies

This new area of research is responsible for carrying out studies on economics of resource development. It was noted that as water and land resources become taken up, then more planned development of these become important. Responsibility for such studies include the design, collection of information, analysis and reporting. Most studies used cost-benefit analysis as a basis for design.

The work was carried out cooperatively with Water Resources Branch, Colonization and Land Development Branch and the Department of Lands and Forests.

1963 FRESH VEGETABLE STUDY
TABLE II
AVERAGE INCOME, EXPENSES AND NET RETURNS PER ACRE

	Fresh Corn	Carrots	Turnips	Onions
No. of farms	(9)	(5)	(3)	(4)
Saleable Yield	659 doz.	20,932 lbs.	19,905 lbs.	7,781 lbs.
Receipts:				
Sale of Crop	$161.41	$666.81	$499.48	$321.48
Other Crop Income	3.48	5.87	7.85	......
Gross Returns	164.89	672.68	507.33	321.48
Expenses:				
Total Supplies and Services	$ 36.24	$ 90.84	$ 76.43	$ 91.69
Total Overhead less Equipment	12.46	10.39	12.36	14.50
Total Field Labour and Equipment Cost	65.85	200.69	216.54	158.22
Storage and Marketing	......	242.88	187.17	69.72
Total Crop Cost	114.55	544.80	492.50	334.13
Net Returns	$ 50.34	$127.88	$ 14.83	$ 12.65

Range In Net Returns—Fresh Corn, 20.89 to 148.91; Carrots, 15.86 to 221.21; Turnips, 14.52 to 16.34; Onions, 89.52 to 290.71.

Excluding the farm with a minus return for peas which had the largest pea acreage, the net return for the other three was $170.00.

FIXED & VARIABLE COSTS AND GROSS RETURNS - PER ACRE
RAPESEED AND WHEAT
1961 - 1963

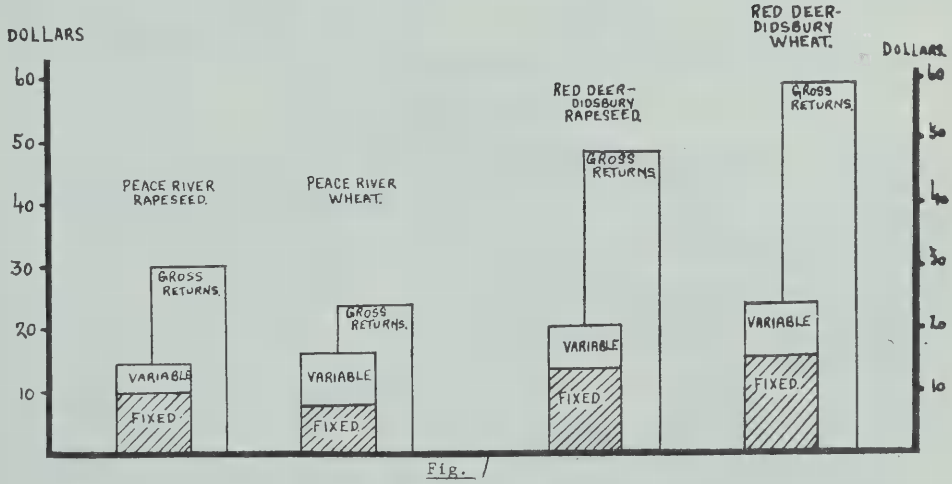


Fig. 1

FIXED & VARIABLE COSTS AND GROSS RETURNS - PER ACRE
SUNFLOWERS AND WHEAT a/
1961 - 1963

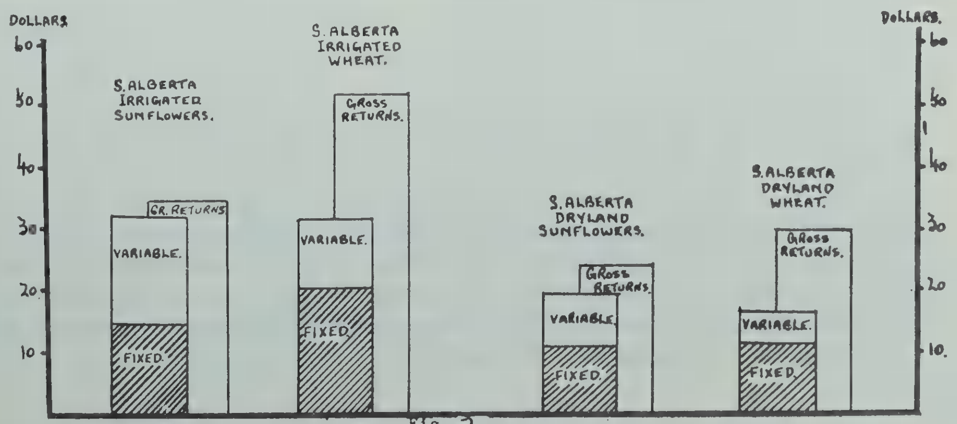


Fig. 2

a/ Wheat costed in 1962 and 1963 only.

Milk Cost of Production Studies

The twenty-fifth consecutive yearly report on milk costs has been prepared for distribution for the areas of Edmonton and Calgary-Red Deer. Feed and labor costs were again recorded for all the Lethbridge and Medicine Hat dairy farms to give the trend in these major items as opposed to the greater detail of study for the 60 or so sample farms in the Edmonton, Calgary, and Red Deer milk sheds. Some additional tasks were undertaken for which time was not available the previous year due to the pressure of meeting deadlines and preparing and presenting the latest possible results to the milk price hearings held across the Province towards the end of 1963. Study farm replacements were made to allow for drop-outs and to keep the size of sample adequate. Maps designating location of all shippers by plant and those on the cost study were up-dated for Edmonton and the Calgary-Red Deer areas. This work was done in cooperation with the Public Utilities Board, milk control staff at Edmonton. A special report comparing milk control in the four Western Provinces was completed recently. The findings in this report have been asked to be presented at a seminar at the University of Alberta and will also be published.

Sample of findings from 1963-64 Milk Costing Report

The following schedule gives the end results of some of the cost data for the areas studied.

TABLE III

COST OF PPRODUCING 100 LBS. MILK—1963-64

	Calgary & Red Deer*	Edmonton
Feed including purchased, home grown and pasture	$ 2.10	$ 2.23
Labour—dairy share total farm labor	.90	.89
All Other Items—hauling fees, interest, repairs, dairy supplies, electricity, depreciation	1.50	1.28
Total Gross Cost	$ 4.50	$ 4.40
Deduct Credit from Herd Increase	.74	.84
Total Net Costs	$ 3.76	$ 3.56
Average price received per cwt. all milk sold	4.44	4.34
Average returns management and profit	.68	.78
Net amount left for profit and management after charging custom rate for dairy labor	$2,813.00	$3,018.00

*Results for Calgary and Red Deer are shown here combined as the two milk sheds now overlap.

Consultant Services Rendered

An important phase of operations continued to be the provision of consulting advice and information to occupational, professional and educational fields. The Supervisor of Production Research continued to act as a special Agricultural Adviser to the Milk Control Board. This year again saw heavy demand by individual dairymen and executive groups for dairy farm costs and outlook. An increased number of farmers made appointments to discuss economy of scale in their dairy operation. Many requests for help resulted from dairymen who in the past year were cut off as shippers to a condensery because of an oversupply of milk.

Farm organizations such as the Federation of Agriculture, the Alberta Milk and Cream Producers Association, Canning Crop Growers Association, Oil Seed Growers Association and the Farmers Union of Alberta used the services of the Production Study Section. Government Departments such as the Federal Economics Division, the Department of Transport, the Farm Credit Corporation, the Federal Immigration Department and the Alberta Department of Highways, and the Alberta Department of Lands and Forests requested and received cost study data and in several instances received further interpretation and details. Studies in certain aspects of Field Crops, Livestock, and Poultry fostered closer coordination with these Branches in the Department. Mutual understanding between the University of Alberta Agricultural Economics Department was furthered in interviews and in exchange of economic data for lectures and laboratory use. Also special assistance was given to provide data and interpretation to graduate and undergraduate students.

Miscellaneous

TABLE IV

STUDIES CONDUCTED IN 1964

Name of Study	Area	No. of Farms or Enterprises Studied	No. of Bulletins Released	No. of Special Acc. Schedules Prepared
Fluid Milk	Edmonton	28	500	20
	Calgary	28	......	......
	Lethbridge	41	......	......
	Medicine Hat	18	......	......
Rapeseed Sunflower Wheat		......	2,000	10
			Miscellaneous	20
Vegetables Sweet Corn Carrots Turnips Onions		20	500	25
Canning Peas		36	......	20
Land Levelling Study		68	......	......
Total		180	3,000	95

The supervisor was appointed on a special committee, advisory to the Minister on the subject of content for a land appraisal course to be offered at the College of Agriculture. Supervisor attended a short course in Regina on Methodology in conducting Socio-Economic Studies. The Section Supervisor carried on as acting Director when the Director was on annual leave, on Civil Defence Course or when on long trips in Ottawa. The assistant supervisor acted on a steering committee for a vegetable growing project for Indian Reservations.

D. MARKETING SECTION

The Marketing Section continued to provide the Agricultural Industry in Alberta with counsel and assistance in connection with the marketing of their products. It should be kept in mind that marketing refers to the many activities that were required in moving products from the farm to the final consumer.

The following are the major activities with which the Marketing Section were concerned over the past year.

Agricultural Marketing Course

A short course in marketing was presented for farmers (and anyone interested), in the districts surrounding Arrowwood, Pincher Creek, and Claresholm. This was a 12 hour course extending over a period of four weeks. The main subject areas were as follows; what were the marketing problems, methods of analyzing marketing problems, factors affecting prices, marketing of livestock, and market power. Attendance averaged 18 persons at each center. These persons evaluated the course as being useful to them in understanding the intricacies and factors involved in the movement of products from the farm gate to the consumer.

Poultry Study

Work continued on the final years' data of the case-study of commercial egg farms that began in the fall of 1961, in cooperation with the Poultry Branch. The objective of this study was to investigate costs of different methods of marketing eggs, in conjunction with costs of producing eggs for flocks of various sizes. A preliminary economic analysis was made of the eleven farms that provided data for this final year. A statement was mailed to each of them to permit comparisons of their own operations with others on study for such factors as returns per farm, per layer and per dozen eggs, feed used per layer and per dozen eggs, per cent rate of lay, eggs laid per bird, mortality, and average price received per dozen eggs in relation to different methods of marketing.

During the year a trip was made to each of the co-operators to check their records and to aid the poultry inspectors with some of the more troublesome aspects of securing accurate data.

Seed Cleaning Plant Study

An analysis was made of data from 19 seed cleaning plants to compare their costs and returns, and factors affecting these items. This information was an aid in assessing sizes and locations of proposed new plants.

The assistant supervisor of the Marketing Section was a member of the Seed Cleaning Plant Advisory Committee that was formed during the year. The purpose of this committee was to evaluate the potential of areas proposed for the location of new seed cleaning plants. Seventeen requests for plants were investigated during the month of September.

Marketing Act Study Committee

The supervisor of the marketing section served as Chairman of a two-man committee who was charged with the responsibility of studying the Alberta Marketing of Agricultural Products Act, for the purpose of recommending any changes necessary to facilitate the intent of the Act, which is to provide for the promotion, control and regulation, in any or all aspects of the marketing of agricultural products within the Province. In order to assess the merits of certain changes to the Act that were suggested by various organizations, the Committee inquired into producer marketing boards and marketing commissions in other parts of Canada and the United States. A report of the findings was prepared, titled, "An Inquiry Into, Marketing Boards in British Columbia, Ontario and Manitoba, and Commissions in Washington and Idaho".

Late in the year, a report concerning the Committee's recommendations for changes in the Marketing Act was forwarded to the Minister of Agriculture.

Miscellaneous Activities

The Marketing Section continued cooperation with the Statistics Section in preparing material for the "Alberta Farm Economist". This is a quarterly publication dealing with marketing and outlook information. Details may be found in the report of the Statistics Section.

Section personnel participated in the programs of District Agriculturists on eight occasions, in addition to addressing such groups as the Rural Leadership Conference at Banff, Rotary Club, Poultry Councils, The Alberta Federation of Agriculture, classes at the University, and staff of the Schools of Agriculture.

Assistance was provided the Farm Management Section in their program with farm business groups, owing to the absence of staff members. Assistance was also given other branches of the Department in analyzing marketing problems and in the extension of market information.

Information and advice was provided numerous visitors to the office, i.e. farmers and other government officers.

E. STATISTICS SECTION

The principal functions of the Statistics Section were: to serve as liaison between the Alberta Department of Agriculture and the Dominion Bureau of Statistics, to make available statistics of agriculture as may be required by Department personnel and the public, to be responsible for the Alberta crop reporting service, cooperate with the Marketing Section in the production of the Alberta Farm Economist; and to perform other services as required.

The Section Assistant Supervisor attended the Federal-Provincial Conference on Agricultural Statistics held at Ottawa, February 18th and 19th. The continuing series of statistics collected under cooperative arrangement were reviewed for the year

1963. Plans for the 1966 census of Agriculture were outlined and discussed. Conference recommendations included reference to "special sample surveys . . . for the purpose of collecting information which the census will not be able to supply" investigation into the needs of feasibility of special surveys dealing with the consumption of foods; annual estimates of major items of machinery on farms; and a proposed 1966 census question dealing with "off-farm versus farm income".

Eleven crop reports were issued at two-week intervals between May 6th and September 23rd. In addition, 13 summaries of crop conditions were prepared and telegraphed to Ottawa for inclusion in Dominion Bureau of Statistics crop reports. The cooperation of some 175 crop correspondents make crop reporting possible. The work of cooperating in 1964 is hereby gratefully acknowledged. The livestock survey questionnaire was changed at June 1, 1964 to include questions regarding cattle on feed. The Statistics Section obtained data about cattle on feed in commercial feed lots through District Agriculturists. The information obtained was referred to the Dominion Bureau of Statistics for inclusion with the returns received by mail. Results of the trial survey were not published.

An agreement was entered into with the Dominion Bureau of Statistics whereby questionnaires dealing with the acreage and production of (1) commercial vegetables and (2) commercial potatoes in Alberta were returned from farmer respondents to this office for compilation, analysis and determination of estimates. All staff engaged in this work was required to take and subscribe the following oath:

> I, ..., solemnly swear that I will faithfully and honestly fulfill my duties as
>
> ....
>
> ....
>
> in conformity with the requirements of the Statistics Act and of all regulations thereunder, and that I will not, without due authority in that behalf, disclose or make known any matter or thing which comes to my knowledge by reason of my employment as such
>
> ....

The Statistics Section was responsible for the outlook articles on cattle, hogs and field crops that appeared in the Alberta Farm Economist in 1964. Five thousand copies of the Economist were distributed quarterly of which about 4,000 went direct to farmers.

With the help of a temporary clerk, progress was made toward getting together material for a statistical history of agriculture in Alberta.

The assistant statistician completed two evening courses on computer management. One was a University of Alberta course dealing with scientific and engineering computer programming, the other on "computer language" was made available at the data processing centre in the Audit Department. He also attended a rural development and communications course held in Banff. Mr. Kuhtz was also on loan for a few weeks to the Farm Management Section of the Branch to assist on farm management extension.

A statistical supplement to this annual report has been made available for some years. The effort was extended to a 24-page booklet for 1962. The amount of material in the booklet is increasing. A supplement for 1964 will be prepared for printing as official statistics become available.

F. RURAL DEVELOPMENT SECTION

The first Rural Development program in the Province was initiated in Census District 14, as provided for in the Agricultural Rehabilitation and Development Act.

The immediate objective of the program was to inventory all of the human and natural resources in the district, and to identify the major economic and social factors which have influenced the development of the area. Later this data will be analyzed with a view of formulating recommendations for alternative action programs to facilitate further development.

The long range purpose of this project was to provide a sound basis for planning improvements to enhance income, and employment opportunities.

Census District 14 was the first and the only designated Rural Development area in the Province. The district extends roughly from Evansburg to the British Columbia border, and from Whitecourt to Drayton Valley. It includes Improvement Districts 78, 79, 95, 96, 109 as well as the towns of Hinton, Edson and Whitecourt, and the villages of Evansburg and Wildwood. It comprises 11,760 square miles with a population of approximately 20,000 persons.

Considerable progress has been made in the compilation of inventory data from secondary sources of information, and by direct surveys. A close liaison has been established with numerous departments of government at all levels, and with industry to aid in the collection of information.

Late in the year local people were involved to organize local study groups. The function of local citizens committees was to assist with the survey, and to help define specific problem areas.

One publication entitled Rural Development Leaflet No. 1 was printed and 4,000 copies prepared for distribution in the Study Areas. It contained a brief resume of the ARDA legislation with emphasis on the Rural Development project.